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DECEMBER 11TH, 1888.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of R. B. HOLT, Esq., of 10, Bedford Place, Russell Square, W.C., was announced.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the BERLIN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE UND URGESCHICHTE. Zeitschrift für Ethnologie. 1888. Heft iv.

From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, UND URGESCHICHTE. Correspondenz-Blatt.—1888. No. 10.

From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. iv. Nos. 12.

From the SOCIETÀ ITALIANA DI ANTROPOLOGIA, ETNOLOGIA, E PSICOLOGIA COMPARATA.—Archivio per l'Antropologia e la Etnologia. Vol. xviii. Fas. 2.

From the ACADEMY.—Boletin de la Academia Nacional de Ciencias en Córdoba. Tomo xi. Entrega 2ª.

From the MUSEUM.—Archæological and Ethnological Papers of the Peabody Museum. Vol. i, No. 1.
From the SOCIETY.—Proceedings of the Royal Geographical Society. Vol. x. No. 12.
—— Journal of the Society of Arts. Nos. 1880, 1881.
—— Journal of the Asiatic Society of Bengal. Nos. cclxxxiii, cclxxxvi.
—— Proceedings of the Asiatic Society of Bengal, 1888. Nos. 4–8.
—— Proceedings of the Society of Biblical Archæology. Vol. xi. Part 1.
From the EDITOR.—American Antiquarian. Vol. x, No. 6.
—— Nature. Nos. 996, 997.
—— Science. No. 303.
—— Photographic Times. No. 375.
—— Revue Scientifique. Tome xlii. Nos. 22, 23.

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The following paper was read by the Author:—

## *On* SOCIAL REGULATIONS *in* MELANESIA.

By the REV. R. H. CODRINGTON, D.D.

IT is necessary, in the first place, in speaking of Social Regulations in Melanesia to say, that my observations are limited to the Northern New Hebrides, the Banks' Islands, the Santa Cruz Group, and the South-eastern Solomon Islands. My knowledge of the social condition of the people in these groups has been derived partly from what I have observed myself, and very much from careful enquiry I have made from natives well qualified to give information. A considerable portion of the Melanesian field is thus in view, and in this there appears to be a general agreement in social arrangements: it may therefore be inferred that there is a wider likeness throughout the region occupied by the Melanesian people.

I propose to deal only with the two subjects of (I.) Marriage, and (II.) Property.

### *I. Social Regulations relating to Marriage.*

The arrangement of society depends on the division of the whole population into two or more classes, which are exogamous, and in which descent is counted through the mother. With one remarkable exception, this division obtains in every settlement, large and small; and it is the knowledge of this that forms probably the first social conception in the mind of the young Melanesian. It stands foremost in the native view of mankind, and is the foundation on which the fabric of society is built up. To the Melanesian man it may be almost said that all women, of

his own generation at least, are either sisters or wives—to the Melanesian woman that all men are brothers or husbands.

An excellent illustration of this is given in a story from Aurora in the New Hebrides, in which Qatu discovers twin boys, children of his dead sister, and brings them to his wife. "Are these," she asks, "my children or my husbands?" Qatu answers, "Your husbands to be sure; they are my sister's children."

I cannot call these divisions "tribes"; the members of them are all intermixed in habitation and in property, and are equally subordinate to the chief of the place in which they dwell; the perfectly well understood and acknowledged relationship through the father connects those who through their mothers are not of kin.

Examples of these divisions may be taken from two regions: (*a*) where there are two, as in the Banks' Islands and Northern New Hebrides; (*b*) where there are more than two, as in Florida in the Solomon Islands.

(*a*) 1. The same two divisions run through the Banks' Islands and the Northern New Hebrides without a name; every one knows who are his kin. In the Banks' Islands the common term is *veve*, a word conveying the notion of distinction; in Lepers' Island, in the New Hebrides, there are two *waivung*, bunches of fruit. Neither *veve* nor *waivung* has a distinguishing name.

2. Each division is strictly exogamous; every member of either must marry into the other. Irregular intercourse between members of the same division is a heinous offence; should such become known the members of the other division will destroy the property of the one in which the guilt is found, without resistance or complaint.

A general term, in Mota *qaliga*, embraces all of the opposite division who have been brought near by marriage, fathers-, mothers-, brothers-, sisters,-in-law. Towards all of these there is a certain degree of reserve; some, particularly mothers-in-law, are avoided. This reserve, which the natives themselves ascribe to a feeling of shyness or respect, is exercised by a man not only to those who are of his wife's kin such as her mother, but also to those who are not of his wife's kin, such as her father. There is in this matter of avoidance and reserve a good deal of diversity in the practice of different islands; in Lepers Island the intercourse of mother and son, and of brother and sister, is closely restricted. In the Banks' Islands one cannot use a word which is the name, or part of the name, of a *qaliga*; and there is a set of words kept in use to take the place of those which may commonly cause a difficulty of this kind.

As this name of *qaliga* applies to both sexes alike, so this reserve and avoidance of the person and name is practised by men and women.

3. It must not be thought that the male and female members of the two divisions are in fact husbands and wives; there is no occasion on which the wives of the men of one division become common to all the men of that division. There does not appear to be any tradition that communal marriage ever existed. The story of Qat in the Banks' Islands shows individual marriage in the case of the first-made woman, whom Qat wove for himself with pliant rods and brought to life for his own wife, and whom Qat's brothers tried in vain to carry off from him for themselves. Yet there is a certain consciousness of the meaning of the words they use for husband and wife and mother.

In Mota the word used for mother, is the same that is used for the division, *veve*, with a plural sign *ra veve*. And it is not that a man's kindred are so called after his mother, but that his mother is called his kindred, as if she were the representative of the division to which he belongs; as if he were not the child of a particular woman, but of the whole kindred for whom she has brought him into the world.

In the same way at Mota, the word for consort, husband or wife, is in a plural form, *ra soai*, the word used for members of a body or the component parts of a house or canoe. So that it is not the man and his wife, or wives, that make up a compound whole, but all the men on one side and all the women on the other; and the wife or husband has the plural designation, because the individual man or woman represents all the rest who are in the position to be wives or husbands.

The Levirate obtains as a matter of course, so far as that a woman who has become the widow of one member of a family connexion remains as the wife of another member of the same. A wife is obtained by a certain payment, towards which the near relations of the bridegroom, both on the father's and mother's side, contribute; it is arranged, therefore, in case of death to which member of the family connexion it will be most convenient and economical that the widow should pass, whether brother, uncle, or cousin of the deceased, of course of his own kin. In the same way an uncle on the mother's side will set up his sister's son, his nearest of kin, in life, by making over to him one of his own wives. Not that the young man had a right to his uncle's wives; but the woman was already in the family.

4. The closest relationship is that between the sister's son and mother's brother. This follows on the descent through the mother: the child is not of kin to his father or to his father's brothers and sisters; his mother's brother stands to him as the male representative of his kindred. At the same time all the father's brothers are called fathers, and the father's sisters mothers; in fact, all on both sides who are near the father's and

mother's generation are called fathers and mothers, except the maternal uncles, who alone have a distinctive name. If a pedigree is drawn up, it will be found that the son takes his mother's place in it; that is to say, if A and *a* are brother and sister, the grandson of *a* counts as of the same generation with the son of A.

In the Banks' Islands the sister's son, *vanangoi*, has certain rights with his maternal uncle, *maraui*, corresponding to those of the Fiji *vasu*, but by no means conspicuous or important. It is a matter of course that the nephew should look to his uncle for help of every kind, and that the uncle should look upon the nephew as his special care. The closeness of this relation is fundamental.

It must be understood withal that the mother is in no way the head of the family; the family house is the father's, the garden is his, the rule and government is his. It is into the father's house that the young bridegroom takes his wife, if he has not one ready of his own.

5. There is in these islands a certain practice of couvade; that is, the father before and after the child's birth refrains from certain food and violent exertion which might damage the infant; but the practice of this is not conspicuous. It is considered kind and respectful to call a man when he has a child the father of so and so; his station in society is advanced by his paternity, and it is recognised in this way.

6. I can point to nothing which appears to me to represent capture in marriage, nor do the circumstances admit of such a kind of exogamy. The two intermarrying divisions live in each settlement intermixed; the inhabitants of any island or village, and any enemies they may have, are composed of the same two divisions. There is in no case war of tribe against tribe, but of village against village, or set against set; if only two families are at enmity both divisions must be represented in each.

Adoption cannot be thought of any importance; orphans are taken by near relations or childless people, or parents will give up a child to friends who wish to have it, generally in the same division.

(*b*) Florida, and the parts of the Solomon Islands near to it, afford the example of a district in which the marriage divisions are more than two. It is probable that the four or six found there are subdivisions of the original two. In Florida these divisions are six, and are called *kema*, a word the meaning of which I cannot explain. In strict exogamy, in descent following the mother, and intermixture of dwelling and property, all is the same as in the Banks' Islands. There are two points in which important differences must be observed.

1. Each division, *kema*, has its distinguishing name. Two of

these names are local, pointing to neighbouring islands; two are names of living creatures. It is evident that the use of names is almost a necessity to prevent confusion where many men have wives, and therefore children, of three or four different *kema*. Since all the children own the common father, the patriarchal element would soon prevail if clear distinction were not made.

2. It adds much to the distinction between the divisions that each has some one thing, or more, from which its members must most rigidly abstain, its *buto*, something that must not be eaten. The impression is deep and abiding on the mind of every child that to eat the forbidden food of its *kema* is a dreadful thing.

There occurs, therefore, the question whether there is not in this something of a totem. But one division, the *Manukama*, has its name from a bird, the osprey, and is at liberty to eat that bird, while it is forbidden to eat the pigeon.

A member of one of these divisions will probably say in answer to a question that the thing he cannot eat represents the original ancestor of his *kema*; one of the osprey division will say that his ancestor was a pigeon. The explanation of this appears to me to be found in a practice of the people of Ulawa, another of the Solomon Islands. Some of them will not eat bananas, and of late had ceased to plant any; the banana is to them what in Florida would be their forbidden food. But the origin of this restraint in Ulawa is recent and remembered; a man of much influence not long ago forbad the eating of the banana after his death, saying that the banana should represent him, that he would be in the banana. In doing this he did what is not uncommon in the neighbouring part of Malanta. In Florida, therefore, the prohibition may be taken to be of the same kind. In Bugotu, part of Ysabel, I am assured that such prohibitions have only been lately introduced.

The practice at Ulawa is illustrated by what is common at Saa, in Malanta. A man before his death will say that after he dies he will be a shark. When he is dead the people will look out for the appearance of some remarkable shark and pronounce it to be he. Certain food, cocoanuts for example, will be reserved to feed this shark. Then it often happens that a man professes to be possessed by the ghost of this man, who has reappeared as a shark, and speaking as with the voice of the dead man, he will claim the privilege of eating the food reserved for the shark. Such a person will then take his place with others who have before made the same demand; and at his death again he will be thought to become, or his ghost to inhabit, a shark. Under such circumstances, it will be freely asserted that an ancestor was a shark.

In the island of Aurora, Maewo, in the New Hebrides, women sometimes have a notion that the origin, beginning, of one of

their children is a cocoanut or a bread-fruit, or something of that kind; and they believe, therefore, that it would be injurious to the child to eat that food. It is a fancy of the woman before the birth of the child that the infant will be the *nunu*, which may be translated the echo, of such an object. Women also fancy that a child is the *nunu* of some dead person. It is not a notion of metempsychosis, as if the soul of the dead person returned in the new born child; but it is thought that there is so close a connection that the infant takes the place of the deceased. At Mota, also in the Banks' Islands, there was the belief that each person had a source of his being, his origin, in some animate or inanimate thing, which might under some circumstances become known to him.

It is possible that these fancies may serve to explain to some extent the origin of the totem.

3. A remarkable exception to the prevailing exogamous division of the Melanesian people remains to be noticed. In the south-eastern part of the Solomon Islands, in Malanta, Ulawa, and San Cristoval, these divisions are, as far as I know, altogether absent; and, moreover, descent is counted through the father, not through the mother. I cannot account for this, and do not know whether the matriarchal system does not prevail in other parts of the same islands, with which I am not acquainted. The most conspicuous example of the couvade within my knowledge among Melanesians, was shown in this same region where descent follows on the father's side.

### *II. Property.*

1. Land is everywhere divided into (1) the Town, (2) the Gardens, (3) the Bush. Of these the two first are held as property, the third is unappropriated.

2. Land is not held in common; every one knows what belongs to himself. Yet the individual has the possession only of what he has inherited, and uses for his life-time as part of the whole property which belongs to the family. There are not two or more divisions of the land thus held in property corresponding to the marriage divisions of the people; the land of these divisions is intermixed. Probably in the origin of each settlement the members of each marriage division worked together; as it is, families have formed themselves within the marriage divisions, and the land is in the possession of families. The chiefs have nowhere more property in the land or more right over it than other men; though, naturally, they are willing to assert such claims in selling to Europeans, and often use their power to drive away the owners of gardens they desire to occupy. Before the coming of Europeans, the sale of land was not unknown, though certainly not common; of late, especially in the

New Hebrides, much land has been nominally bought from chiefs, or supposed chiefs, but by no true sale. There is a remarkable example of the fixedness of native right of property in land to be seen at Saa in the Solomon Islands, at the southernmost part of Malanta. The much greater and much more important number of the inhabitants are descendants of refugees, who came, eleven generations ago, from inland, and were received by the then owners of the place, who allowed them the use of land for houses and gardens. To the present day, with the exception of some parcels they have bought, or which have been given to them, these immigrants, even powerful chiefs, have no land of their own; it is perfectly understood that the land they occupy belongs to the original inhabitants. But, in fact, everywhere, or almost everywhere, the abundance of land makes it of little value.

3. If an individual reclaims for himself a piece of bush land, it becomes his own; and the different character of his property in it is shown by the difference in the right of succession to it. If, as sometimes happens, a village grows up in the garden ground of an individual, or of a family, the property in the house sites is recognised as not being altogether that of the occupiers. They pay no rent, but they show a certain respect and consideration for the representative of the proprietor.

4. It is remarkable that fruit trees planted, with the consent or acquiescence of the owner, upon another man's land, remain the property of the planter and of his heirs. In a true sale, the minute and accurate knowledge of property in land and trees is remarkably displayed. I once completed the purchase of a site for a mission school in the Banks' Islands, and found the rights, and the limits and value of the rights, of every man and woman concerned surprisingly acknowledged and defined by common consent. When I thought all was finished, a fresh applicant for payment on account of a fruit tree appeared from a distance, accompanied by the owner of the land on which the tree grew, who testified that the claim was good. "Certainly," he said, "the claimant's grandfather had planted that tree, and he had the right to it."

5. Personal property consists in pigs, which are everywhere much valued; money, in whatever form it is found, canoes, ornaments, weapons, and the various implements used in native life.

6. Succession to property of all kinds is regularly and properly with the sister's son, or with others who are nearest of kin to the deceased through his mother. If the owner has not made testamentary arrangements before his death, his heirs divide his personal property amongst themselves, according to their opportunity rather than their right. A man before his death will make arrangements by which his sons may receive a part at

least of his land; or the sons after his death will redeem it from their father's kin. In doing this, they will sometimes lay the redemption money on their father's corpse, from which his proper heirs will take it publicly, so that there shall be no dispute.

Whatever property, however, a man has acquired for himself, as when he reclaims a piece of land from the bush, he may leave to his sons; or his sons, and their sons after them, may claim. This is the source of many quarrels, the character of a piece of ground being forgotten in course of time, or disputed by the regular heirs to the rest of the land. It is evident that much of a man's personal property is the direct produce of his own industry, and will so seem to be the natural inheritance of his own children. A man will, if he can, arrange before his death that his sons shall have it; or his sons after his death will redeem it if they can from their father's kin. But a man's kindred on the mother's side will always maintain their position as the natural and proper heirs of whatever he possesses.

It thus appears that there is a tendency to the succession to property by a man's own children, and a practical relaxation of the law by which a man's heirs were his kindred by the mother. This has followed to some extent on the occupation of new ground, and may, therefore, be thought to have been strengthened by the formation of new settlements. But it is evident that such a tendency is founded on the assertion of paternity; and the existence of such a tendency may be taken to mark a transition from the matriarchal to the patriarchal system.

### Discussion.

Dr. E. B. Tylor, expressing his sense of the important bearing of the paper on the principles of systems of social structure, called particular attention to the clearness with which a system of exogamy is exemplified, which is not only the simplest possible, but is probably also the most primitive. This dual division of society for the purpose of intermarriage apparently accounts for the fact that among other peoples totemic division is most often into two halves, these being again sub-divided. It is also from the dual division that the most important system of classificatory relationship is apparently devoid, as has been shown by Mr. Fison. Dr. Codrington remarks on the manner in which a particular vegetable or animal may be brought, through a rule of abstinence, into connexion with a particular ancestor. It is possible that the tribes who talk of themselves as descended from a dog or a corn-plant, may have had underlying this paradox a meaning more rational from our point of view, and the facts now brought forward show at any rate a custom actually going on, which, in a natural way, leads men to formulate a statement leading (when taken verbally) to such belief. Enquiry would have to be made how far similar commemoration by abstinence, and consequent choice of a totem, prevails among tribes elsewhere in the world.

Dr. E. B. Tylor read the following paper in the absence of the Author:—

## Notes *on* Australian Message Sticks *and* Messengers.

By A. W. Howitt, F.G.S., Corresponding Member Anthrop. Inst. of Great Britain.

[with plate xiv.]

It has been long known that the Australian Aborigines make use of pieces of wood marked in various ways in order to convey information from one to another. It has been stated even in Australia that these so-called "Message sticks" can be read and understood by the person to whom they are sent, without the marks upon them being explained by the bearer. I have even known it to be said that persons other than he to whom the message was addressed could read the marks much as with us an educated person can read the words inscribed in one of our letters. Indeed these message sticks are often spoken of as "Blackfellows' letters."

The subject is important in so far that a right understanding of the method by, and the manner in which the markings on the sticks are made to convey information, will be well calculated to afford some measure of the mental capacity and of the mental status of the persons using them.

In order to test the question thus raised, as for instance whether these message sticks do or do not convey information to those receiving them, apart from any explanatory message given by the bearer, I made such personal investigations as I found possible, and I also addressed myself to numerous correspondents in various parts of Australia. My best thanks are due to a number of them who kindly responded to my enquiries and whose information I have recorded in these notes.

Unfortunately for the more complete success of my investigations it happens that the Kurnai of Gippsland, to which I have the readiest access, are a tribe which did not use message sticks excepting in their most rudimentary form, and therefore I could not with them put the matter to such test as would otherwise have been possible.

These notes were at first intended to refer only to the subject of message sticks, but I soon found it necessary to say something about the messengers themselves, as well as of what may be called the emblematic tokens which in some tribes they also carry together with the message stick or without it.

Such emblematic tokens are for instance the sacred humming instrument used in the initiation ceremonies, which is conveniently spoken of by its English name of Bull-roarer; the man's kilt which is carried on the point of a spear when the message calls an assemblage for war, and the lumps of pipeclay or red ochre which some messengers of death or of festivity also carry are likewise emblematic tokens.

I have, however, only touched upon these subjects because their full consideration would lead me far beyond the scope of this paper, which is intended to deal with message sticks especially.

The use of message sticks is not universal in Australian tribes, and the degree of perfection reached in conveying information by them differs much. Some tribes such as the Diēri do not use the message stick at all, but make use of emblematical tokens such as the net carried by the Pinya, an armed party detailed by the council of head men of the tribe to execute its sentences upon offenders. Other tribes such as the Kurnai use pieces of wood without any markings. Other tribes again, especially I think in Eastern Queensland, use message sticks extensively, which are often elaborately marked, highly ornamented and even brightly painted.

Taking Gippsland as a first example, it is to be noted that the Kurnai used the message stick in its most rudimentary form. For instance if a man desired to arrange with the men of another locality for a meeting at a certain time and place he might do as follows. I assume the message to be an invitation to meet for a corroboree at a place indicated by name to the messenger, that the time would be after an interval of "two moons" and that the persons to be invited lived in several distinct localities. The sender of the message in giving it to his messenger (Baiara) might, if he used anything to aid the memory, break off a number of short sticks from some tree or bush at hand equal in number to the localities to be visited, delivering them one by one to the messenger as he named the places. The same method would apply to the enumeration of individuals.

I have known the various stages to be made in travelling to be counted to a messenger by enumerating them on the fingers of one or both hands, and where these did not suffice by also using the toes in his count.

It is not necessary that the message be carried by any particular person, but in most cases the messenger would be one of the younger men related to the sender. If, however, the message related to the initiation ceremonies, the messenger would be one of the older men. Such a messenger would carry with him a Bull-roarer as a token. If the message related to a set-

fight,[1] the token might be a club or a shield, or if to gather a war party a man's kilt carried suspended from the point of one of the jag spears. This would be passed on from locality to locality until it had made its round.

The tribes nearest allied to the Kurnai were those to the westward of Gippsland, and of which the Woiworung of the Yarra River may be taken as an example. This tribe is now all but extinct—one survivor is the intelligent old bard whose songs Dr. Torrance has recorded,[2] and whom I have had before occasion to refer to as my authority for the customs of his people, of which he is a complete repository. In this tribe it was the headman of some locality who sent out messengers to collect people for festive occasions, for set-fights or for other matters concerning the tribe, and he did this after consulting with the other old men. The messenger was usually one of the younger men, and if possible one whose sister was married to some one in that part of the tribe to which the messenger was to go,[3] for under such circumstances a man could go and return in safety, being known to and protected by the people he visited.

Berak gave the following illustrations of the practice which I quote as nearly as possible in his own words: "Suppose being a Ngŭrŭngéta (headman) I desired to call the people from all round to come to a corroboree and for ball playing,[4] I should, after I had talked with my friends, say to one of the young men, you go to such and such people and take this Kalk, and give it to the Ngŭrŭngéta there and tell him this message. The man then going would hand my Kalk to the headman there and would give him my message, who would then show it to his men and repeat my message to them."

No messenger who was known to be such was ever injured, for people were always glad to receive news and messages. The message stick called Mŭngŭ-Kalk (1), or Barndana (2), was made

[1] I use the word "set-fight" for those expiations by spear-throwing or by club in which some offender was brought to punishment in the presence often of the whole tribe. See "Kamilaroi and Kurnai," p. 216.

[2] "Music of the Australian Aboriginals," Journ. Anthrop. Inst., Vol. XVI, p. 335.

[3] Probably also a man married to a woman of that part, or a man the son of such a woman.

[4] This game of ball-playing was also practised among the Kurnai, the Wolgal, the Wotjoballuk as well as by the Woiworung, and was probably known to most tribes of south eastern Australia. The Kurnai made the ball from the scrotum of an "old man kargaroo," the Woiworung made it of tightly rolled up pieces of opossum skin. It was called by them "mangūrt." In this tribe the two exogamous divisions, Bunjil and Waa played on opposite sides. The Wotjoballuk also played this game, with Krokitch on one side and Gamutch on the other. The mangūrt was sent as a token of friendship from one to another.

by the sender and was kept by the recipient of the message as a reminder of what he had to do, as for instance, to meet the sender at a certain time and place, and to take certain persons with him. For friendly meetings for corroboree when there was no cause of quarrel existing, the messenger carried a man's kilt (Braujep) and a woman's apron (Kaiung) hung on a reed; for meetings to settle quarrels or grievances by a set-fight, or for hostile purposes generally, as for instance to combine for an attack upon some common enemy, the kilt was hung upon the point of a jag spear made of ironbark wood (3).

The place of meeting being named verbally in the message which the messenger "carried in his mouth" it might be necessary to indicate the precise time upon which the people should assemble. This could be done by counting the different stages or camps to be made on the journey, or the number of "Moons." If the number to be counted was large, recourse was had to various parts of the body, each of which had a recognized name, and an understood position in this method of enumeration. So many parts thus enumerated, counting from the little finger of one hand, meant so many stages, or days or months as the case might require.

(1). *Būbūpi-mŭringya* = child of the hand. The little finger.

(2). *Bŭláto-rável* = a little larger; the ring finger.

(3). *Bŭláto* = larger; the middle finger.

(4). *Urnŭng-mélŭk* from *Urnŭng* = a direction, and *Melŭk* = a grub found in the boles of some *Eucalypti*; the forefinger.

(5). *Babŭngyi-muringya* = mother of the hand; the thumb.

(6). *Krauel* = the wrist.

(7). *Ngŭrŭmbŭl* = a fork; the divergence of the radial tendons.

(8). *Jerauabil* = the swelling of the radial muscles.

(9). *Thámbŭr* = a round place; the inside of the elbow joint.

(10). *Berbert* = the ringtail opossum; also the name of the armlet made of the pelt of that animal, hence used to designate that part of the arm where the armlet is worn; the biceps.

(11). *Wŭling* = the shoulder joint.

(12). *Krakerap* = the bag place, or the place whence the bag hangs by its band, *i.e.*, the collar bone.

(13). *Gŭrnbert* = Reed necklace, the neck or the place where the necklace make of pieces of reed is worn.

(14). *Kŭrnagor* = the point or end of a hill, or of a spur or ridge, hence the lobe of the ear.

(15). *Ngárabŭl* = a range or the ridge of a hill, hence the side suture of the skull.

(16). *Bŭndale* = the cutting place, *i.e.*, the place where the

mourner cuts himself with some sharp instrument, from *bŭndaga* = to cut, *e.g.*, *Bŭdagat kalk*, cut the wood or log. This is the top of the head.

From this place the count follows down the equivalent places on the other side, thus giving a considerable scope for enumeration.[1]

This method of counting fully disposes of any belief that the paucity of numerals in the languages of the Australian tribes arises from any inability to conceive of more numbers than two, three, or four.

My informant, Berak, made a message stick such as was formerly used by his tribespeople. It is represented in fig. 1, Plate XIV. His explanation of it was as follows :—

The notches on the upper right hand side of the stick represent the sender, and other old men who join with him in the message. Those on the under side represent the recipient and the old men with him. The remainder of the stick being notched along the whole length above and below means that all the men of both localities are to be present. The markings on the flat side at the right hand are merely ornamental, as are also the crescent-shaped ends of the stick. This message is supposed to be an invitation to some people at a distance to come to a corroboree.

The next example which I take is that of the Wotjoballuk, of the Wimmera River in Victoria. The particulars are obtained by enquiry from old men of that tribe.

Messages were sent by the old men by messengers whom they instructed, and to whom message sticks were given. Having consulted together, and having arrived at a determination, as for instance that some other part of the tribe should be summoned to meet with their part of it on some festive occasion, or for some other purpose, the principal man among them prepares a message stick by making certain notches upon it with a knife. In old times the marks were made with a mussel shell (*unio*). The man who is to be charged with the message looks on while the headman makes the message stick (*galk*), and he thus learns the connection between the marks upon the stick and his message. A notch is made at one end to indicate the sender, and probably notches also for those who join him in sending the message. A large notch is made on one edge for each tribal group which is invited

[1] I note the following as to messengers in tribes to the south west of the Woiworung as given by Buckley (Morgan, "Life of Buckley," McDougal, Hobart Town, 1852).

"A messenger came from another tribe saying we were to meet them some miles off. Their method of describing time is by signs on the fingers, one man of each party marking his days by chalking on the arm and then rubbing one off as each day passes," p. 35. See also similar statements, pp. 49 and 61.

to attend. If all the people are invited to attend, the stick is notched on the edge from end to end. If part only are invited, then a portion only of the stick is notched. If very few are invited to meet, or referred to in the verbal message, then a notch is made for each individual as he is named to the messenger.

The oldest man (Headman) having made such a message stick hands it to the old man nearest to him, who inspects it and, if necessary, adds further marks and gives corresponding instructions. Finally, the stick having passed from one to other of the old men present is handed to the messenger, who has received his verbal message in connection with it. If any duration of time is connected with the message, or if an enumeration of stages or camps is made, a method is used which is almost identical with that which I have given in speaking of the Woiworung. Its occurrence in these tribes suggests that it must have been general over a considerable part of Victoria.

Commencing at the little finger the enumeration is made as follows:—

(1.) *Giti-mŭnya* = little hand = little finger.

(2.) *Gaiŭp-mŭnya*, from *guiup* = one, and *munya* = hand; the ring finger.

(3.) *Marŭng-mŭnya*, from *marung* = the desert pine (*Callitris verrucosa*). This has reference to the middle finger being longer than the others, as the desert pine is taller than the other trees growing in the Wotjo country.

(4.) *Yolop-yolop-munya*, from *yolop*, to point or aim. Thus *yolop-bŭk* is the act of aiming a spear. The forefinger.

(5.) *Bap-munya*, from *Bap* = mother.

(6.) *Dart-gŭr*, from *dart* = a hollow, and *gur* = the forearm; this refers to the hollow formed by the inside of the elbow joint.

(7.) *Boibŭn* = a small swelling. This refers to the swelling of the flexor muscles of the forearm.

(8.) *Bun-darti* = a hollow, referring to the hollow of the inside of the elbow joint.

(9.) *Gengen-dartchŭk*, from *gengen* = to tie, and *dartchŭk* = the upper arm. This name is given also to the armlet of opossum pelt which is worn round the upper arm, hence applied to the biceps muscle.

(10.) *Borporŭng*, the point of the shoulder.

(11.) *Jarak-gourn*, from *jarak* = reed, and *gourn* = neck, that is, the place where the reed necklace is worn.

(12.) *Nerŭp-wrembŭl*, from *nerŭp* = the butt or base of anything, as *nerup-galk*, the butt of a tree at the ground. Hence applied to the lobe of the ear (*wrembul*).

(13.) *Wŭrt-wrembul*, from *wŭrt* = above and also behind, and *wrembul* = ear. That is, that part of the head which is just above and behind the ear.

(14.) *Doke-doke*, from *doka* = to move.

(15.) *Det det* = hard. This refers to the crown of the head; from here the count is carried down the corresponding parts on the opposite side.

The messenger carried the message stick in a net bag, and on arriving at the camp to which he was sent, he handed it to the headman at some place apart from the others, saying to him, "So and so sends you this," and he then gives his message, referring as he does so to the marks on the message stick; and if his message requires it, also enumerates the days or stages as the case may be by the above method. The headman having examined the message stick hands it to the other old men, and having satisfied himself how many people are wanted and how many hordes[1] are to be present, and having made such other enquiries as may be necessary, calls all the people together and announces the message to them.

The message stick is retained by the recipient, who carries it back when he goes to attend the meeting it calls together. The messenger meanwhile lives in the camp with some of his connections or friends until they all depart, when he accompanies them. Such a messenger would never be interfered with. No one would think of injuring a man who brought news. If any one were to molest him the whole of the people would take the matter up, but especially his own friends.

The messenger in this tribe did not carry any emblematical token in addition to the message stick, even when carrying a message relating to a set-fight or to war, but a messenger of death painted his face with pipeclay when he set out.

The illustration, fig. 8, Plate XIV, represents one of the message sticks used in this tribe. It conveys a message from the headman of the Gromillŭk horde, to the people of the Yarik-kŭlŭk horde at Lake Coorong, both being local divisions of the Wotjobalŭk tribe. The message invited all the people to come to a corroboree.

The notches at (*a*) represent the sender and his four friends, being the principal men at Gromilluk. The notches at (*b*) represent the Yari-kuluk people. The notches continuing along the edge to the end on each edge indicates that all the people are to come. The shape of the stick is due to it having

[1] Horde is used to designate one of the local divisions of a tribe which counts descent through the female line. I only use the word clan for the local divisions of a tribe which has descent in the male line.

been made from a crooked branch of a tree, and is not intentional.

The next tribe to be mentioned is the Wirajuri of the Lower Murumbidgee River in New South Wales. This tribe has the Kamilaroi organization into four classes, with descent in the female line. Each class has a group of totems. In each locality the oldest man of any totem is the head of the totem there, and the oldest man of any totem is the head of that totem as a whole. Important messages, such as those relating to the initiation ceremonies (*Bŭrpŭng*) are sent by a headman. The messenger must be of the same totem as the sender, and the message is sent to the oldest man of the same totem in the locality to which the message is sent. This oldest man is the head of the totem there. Thus, supposing the headman sending the message to be a Kubi, his messenger is a Kubi, as is also the man to whom the message is sent. The message is sent on from one place to the other by men of the same totem.

On such a mission the bearer of the message is safe from harm. He is provided with a stick, the notches on which remind him of his message. If the message is one calling the people together for initiation ceremonies, the messenger carries also a bull-roarer (*Bolū*, or *Mudjigang*), a man's belt (*Gūlir*), a man's kilt; *Bŭran*, or *Talabūlga*) made of kangaroo rat skin; a head-string (*Ulūngaiir*); and a white head-band (*Kambrŭm*). That is to say, in addition to the message stick the messenger carries the sacred emblem which compels the attendance at the ceremonies of those to whom it comes, and also the various articles with which the novice is invested when he is "made a man."

The messenger having made known his errand to the man to whom he has been sent, and delivered his message stick and the other tokens of his message, the recipient assembles the men at the council place (*Ngūlūbūl*). He there shows them the message stick and the tokens, and delivers to them the message.

Sometimes, when a kilt is sent, the strips of skin forming it are used instead of a notched stick to remind the bearer of his message.

The recipient of the message sends it on with all the articles he has received by one of his own people, and it thus travels until the furthest point is reached.

The tribes which inhabited the Maneroo tableland and the south coast of New South Wales also used message sticks much as did those I have mentioned. The messenger, as in other places was usually a young man related to the man who sent the message, and he was chosen, if possible, as having relations or friends at the place he was sent to.[1] If the message related to

[1] The man who acted as messenger between me and the Murring people about the holding of their initiation ceremonies was one of the Krauatun clan of the

a meeting for corroboree he carried a kilt (*Bŭran*), a head-band (*Ngūnūmla*), and a nose peg (*Elūngantū*). If the message related to a set-fight he carried a shield (*Birkūmba*), and if the message was to call together a war party he carried a jagspear (*Jerumbŭdı*). In relation to the initiation ceremonies he carried a bull-roarer (*Mŭdji*), and also a spear, boomerang, and shield.

The following account given to me by Mr. A. M'Reachie, of Delegete, will show how these messages were sent in the early days when Maneroo had not been long settled by the whites, and while the aboriginal tribes were still in the primitive condition.

When travelling, in 1840, on the Upper Snowy River, he met two young men, one of whom carried two sticks, each about two feet in length, and having notches cut on them. These, they told him, were to remind them of their message, which was to the Maneroo blackfellows, asking them to meet those of the Tumut River and Queenbeyan in the Snowy Mountains, at the sources of the Snowy River, for the purpose of feasting on the Bogong moths.

I have now recorded these particulars which are known to me about tribes with which I have personal acquaintance, and I proceed to note information for which I have to thank correspondents scattered over a wide extent of Australia.

The practice of the Kamilaroi tribes is indicated by the statements of Mr. C. Naseby,[2] of Maitland, whose knowledge of the tribes in that district extends over fifty years. These new messengers in each clan,[3] who were like heralds, and as such were well known, could safely go among neighbouring tribes even when there was war. These men, being well known, needed not to carry any emblems, but if a man was employed by a white man as a messenger, he carried the letter entrusted to him in a cleft stick, and he could then pass safely through even an enemy's country, because he was seen to be the "white man's messenger," and that, therefore, if any harm happened to him, the "tribe of the white man would become very angry."

Mr. Cyrus E. Doyle, writing to me of the Kamilaroi blacks of the Gwydir River, says that the old men of the tribe formed a council which managed all matters of importance. It was they who sent messengers to distant places. Message sticks were

Kurnai. He had married a Maneroo woman and his mother had come from the same district. He was therefore free of that tribe (Wolgal) and he was the recognised means of communication between his tribe and his wife's. He spent his time between the two.

[2] For Mr. Naseby's valuable information I have to thank also Mr. J. Fraser, B.A., of Maitland, who kindly placed us in communication.

[3] Mr. Naseby's context shows me that he uses the word clan for a local subdivision of a tribe and not for one of the social divisions.

used, but only had notches cut on the edges by the sender to show the number of men required to meet together, or to help the sender's people against their enemies.

Messages of less moment were intrusted to the messengers to deliver verbally.

In the Yualaroi tribe on the Ballone River, in New South Wales, according to Mr. Robert Crowthers, "men not specially appointed can carry pieces of wood with marks on them from one person to another, but they have to explain their meaning as the marks alone go for nothing."

Still further to the northward, in the Bunya-Bunya Mountains, is the Kaiabara tribe, which divides into four exogamous intermarrying classes of the Kamilaroi type, but with descent in the male line. Here also message sticks are used, and according to my informant, Mr. Jocelyn Burke, sub-inspector of native mounted police, when the message relates to combats between the Kaiabara and neighbouring tribes, which are to be arranged in consequence of some man's offence, as the abduction of a woman, the challenge is sent by a messenger, who carries a piece of wood cut in the form of a boomerang, with a shell tied at one end. If the other tribe keeps the stick and the shell, the challenge is accepted, and they send back word by the messenger naming the place and time for the meeting; but if they consider themselves not strong enough and are afraid, they keep the shell and send back the stick. This means that they decline the challenge. They have to break the shell on a stone in the presence of the messenger as a sign that they acknowledge themselves to be beaten.

On the coast of Southern Queensland there was formerly a considerable tribe, which has now almost perished. It was called the Chepara. It was divided into a number of local clans, but had so far as the most careful enquiries by my correspondent, Mr. James Gibson, J.P., of Yatala, could discover, no class divisions or totems. There are, however, indications that these once existed.

In this tribe messengers were sent on tribal matters by the principal headman of the clan, or in matters of great and general moment by the principal headman of the tribe. The messenger (*Būira*) has usually a son or a near relation of the sender, such as his "Kanil."[1]

If the message was an important one from the headman of the tribe, the messenger carried with him a message stick called "*Kabūgabŭl-bagerū*." The marks on this stick are said to have

[1] Kanil is a sister's son's son, or a sister's daughter's son. Here we have lingering traces of descent through the female line in the choice of a messenger.

been always the same, and to have been known to mean that the recipients of the message were to pack up and start for the appointed camp. The stick itself conveys the message, but the bearer of it also carried a communication by word of mouth. The messenger on his arrival delivered the stick to the headman of the clan to which he was sent, which was the one nearest to his own. This man then sent it on by his own messenger, and so on until it finally returned to the first sender.

This message stick was sent on all occasions when the whole tribe was to assemble for corroborees, fights, or for the Bora ceremonies. The messenger was painted and decked with feathers, and when the message referred to the Bora, he carried also in addition to the Kabūgabŭl-bagerū, a bull-roarer (*Bribŭn*) and a spear, to the point of which was attached a bag containing quartz crystals, which might only be shown to the various headmen. It was not lawful for a woman to see the Kabūgabŭl-bagerū, and if she saw the Bribŭn she was liable to be killed.

Along the coast to the northwards of the Chepara was the Turribul tribe. Mr. Harry Aldridge, of Maryborough, has kindly given me the following important information as to the use of message sticks by that and the neighbouring tribes. Mr. Aldridge has had great experience, having lived in the Turribul country almost since its first settlement, and has not only frequently observed the use of message sticks, but has also used them himself in communicating with the blacks. He tells me that the maker of a message stick makes it in the presence of his messenger, and explains it to him. If the messenger cannot deliver it himself, he in his turn explains it to some other messenger, who undertakes to deliver it. If shown to a man to whom it has not been explained, he will say, for instance, "I know this means something, but I do not know what it means."

As an illustration of this means of sending a message, Mr. Aldridge sketched a message stick and gave the following particulars. The sketch has been reproduced in fig. 17, Plate XIV.

He said, "I assume that I am a black fellow living at some place distant twenty to thirty miles from some friend to whom I desire to send the following message—'I am here five camps distance from you. In such and such a time (say ten days), I will go and see you. There are so and so (naming them) camped here with me. Send me some flour, tea, sugar, and tobacco. How are Bulkoin and his wife, and Bunda.' Having my messenger by me, I should then prepare a message stick, say a piece of wood, six inches long, half an inch wide, and on it I should make the following marks shown in the sketch.

"(*a*). Five notches representing the five stages (camp) distant from the recipient of the message.

"(*b*). A flat place cut in the edge to show a break in the message.

"(*c*). Ten notches representing the time in days after which the sender will visit his friend.

"(*d*). Eight notches representing the eight people camped with the sender.

"(*e*). Four notches representing the articles asked for.

"(*f*). A flat place representing another break in the message.

"(*g*) Three notches representing the three people asked after.

"Having made these marks and explained them to my messenger, I should carve the end of the stick to make it ornamental, and then give it to him for delivery."

In fig. 13, Plate XIV, there is represented a message stick used by the Mŭndainbŭra tribe at the Dawson River, in Queensland. This tribe divides into four classes, Kūrgila, Kŭnbe, Wŭngū and Kūbūrū, having female descent.

My correspondent Mr. W. Logan, of Durham Downs, says of this stick as follows: "the notches in the upper edge[1] represent a number of men of the Kūrgila class of the tribe. The two rows of dots below represent men respectively of the Kŭnbe and Wungu classes. The notches on the lower edge represent men of the Kuburu class. The message with it was to invite these people to a corroboree."

In writing to a valued correspondent, Mr. R. Christison, of Lammermoor Station, on the subject of message sticks, I submitted to him a sketch of the Mundainbura message sticks with a request that he would ascertain what the men living with him of the Dalebŭra tribe could make of it; the Dalebura tribe has the same class divisions as those above noted.

In reply he wrote as follows: "I return the message you sent in your letter and I will explain all the blacks here can make of it. The top notches represent the Karagilla class; the bottom ones represent the Kooberoo class and the dots represent a wish to meet."

This statement is important as showing that the notches in the upper and lower edges have a definite meaning as the Kurgilla and Kuburu classes respectively.

On the coast north of Rockhampton is the Kūinmŭrbŭra tribe, which has a class organization on the Kamilaroi type, with descent in the female line. Mr. W. H. Flowers, of Pine Mountain, says as follows: "Meetings for Boras (Initiations) are called by means of message sticks. One lately sent here from the blacks to the westward was from the Bau totem (Black Eaglehawk) of the tribe to the Merkein totem (Laughing

[1] Represented on the left side in the figure.

Jackass) of this tribe, was a piece of rosewood about five inches by one and a half inches, and one-sixth inch thick."

I may add to this that both the Bau and the Merkein totem are of the same primary class Witterū although occurring in different tribes.

At the Belyando River somewhat further north is the Wakelbura tribe which may serve as the type of a number extending over a large extent of country and as to which I have received many interesting particulars from a most competent observer, Mr. J. C. Muirhead, of Elgin Downs.

From his account I extract the following: A messenger is chosen who has a number of friends in the tribe to which he is to be sent or which he is instructed to bring. Should such a messenger be killed or injured, his tribe would retaliate by killing or injuring the man who did it. Message sticks are used to send messages by such messengers.

The following instance will show how message sticks are used in this tribe, figs. 15 and 16, Plate XIV, represent one which was sent by one of the Wakelbura, to a member of the Yangebura tribe at Blackall. The stick being sent by an Obū is Gidyea,[1] timber being *Wūtherū*. The message refers to game, (*a*) being for Emu, (*b*) for Wallaby, to be found near a certain wire netting fence, (*c*) on a station near Clermont. The marks on the stick do not convey their meaning without a verbal message. The man who takes the stick explains their meaning. If the stick were sent by a Mallera, everything marked on the stick would be Mallera, and it would be delivered to a Mallera. But the above described and figured stick was sent by Obū to Obū. The sticks are always painted, this one was coloured blue.

Here we have again a case analogous to the Wirajuri practice, the message goes through the same totem. But the principle involved is here much more comprehensive. The stick itself is of wood which is of the same totem as is also the game noted on it. In this tribe the two primary, and the four sub-classes divide, I may say, the whole universe into groups. The two primary classes are Mallera and Wutheru, therefore all objects are either one or the other. The practice is carried to such an extent that for instance a wizard who is Mallera can only use objects for his magical practices which are also of the same class as himself. Moreover when he dies the staging upon which his body is laid out must be made of the wood of some tree belonging to the Mallera class. Hence it is necessary as in the case just given, that when a man of the Obū sub-class sends a message stick it must be made of some wood which is also Obū.

[1] Acacia homalophylla.

I am indebted to Mr. E. Palmer, M.P., of Gamboola, for examples of message sticks used by the Kūgobathi tribe, at the Mitchell River which flows into the Gulf of Carpentaria. The one given in figs. 6 and 7 of Plate XIV, represents the front and reverse of a message stick sent by a blackfellow at the Flinders River to another at the Mitchell River, to inform him that his wife was dead. The one shown by fig 5, Plate XIV, is a friendly reminder or greeting, carried without any message excepting the sender's name by Mr. Palmer from a man of the Maikūlon tribe, to a man of the Maiapi tribe.

Unfortunately I have no descriptive statement of the message and the marks connected with it as shown by figs. 6 and 7.

These are examples of the more ornamented class message sticks which are used in some places.

In the country through which the Darling River flows in Western New South Wales the tribes also used the message stick extensively for conveying information from one to the other.

The following details have been kindly communicated to me by Mr. J. W. Boultbee of Tarella.

Message sticks can be sent by anyone, even by a white man. The marks placed upon the sticks are aids to memory. Fig. 4, Plate XIV, represents a message stick sent by a Tongaranka blackfellow inviting two of his friends at a distance to come and see him as his wife was ill and could not travel. The notch (*a*) means the sender; (*b*) and (*c*) the two men invited. The stick was wrapped round with a piece of thread to render it less liable to be lost.

Figs. 2 and 3 represent the two sides of another stick belonging to a message sent from the son of the headman of the Tongaranka tribe to a man at Tarella. The message was to tell him that the sender and his two brothers, and also two old men were at a certain water hole, and wished him to bring down his son to be initiated (made a man), as there were two other boys ready for the same ceremony. The notches (*a*) (*b*) (*c*) in fig. 3 represent the sender and his two brothers; the notches (*d*) (*e*) represent the two old men. The notches in fig. 2 are as follows: (*d*) represents the recipient of the message; (*c*) is his son, and (*a*) and (*b*) the two boys ready to be initiated.

This message stick is made of part of the small branch of a tree, and is wrapped round with a few strands of the "man's kilt" with which article of man's attire a boy is invested after initiation. The whole is tied up by means of about two feet in length of the cord made of twisted opossum fur for which the novice wears for a time after his initiation, as evidence of being a "young man."

In this instance, the "emblematic tokens" are made part of the message, and are not, as in some tribes already referred to, carried separately by the messenger.

Yorke's Peninsula, in South Australia, was occupied by the Adjadūra tribe.[1] My informant, Mr. T. M. Sutton, of Point Pearce Mission Station, has most obligingly made minute enquiries for me as to the use of message sticks by that tribe, the results of which I now propose to give shortly.

Meetings of head men of the clans, or of the clans, or of the whole tribe for festive or ceremonial purposes were called together by means of messengers who were told off for the duty by the headman of that division or clan which initiated the proceeding. These men carried message sticks. If a reply was required, the same or any other man carried it back, sometimes by message stick, sometimes by word of mouth only. There does not seem to have been any established rule as to the return message. The messenger carried the message stick (*Māṅk*) rolled up in the skin of any kind of animal. At the present time a handkerchief is used. The bearer on his arrival hands it to the person to whom it is sent.

Various kinds of message sticks are used, or rather message sticks bearing various marks. That for corroboree has its markings. If the meeting is for initiation a second stick is sent also with markings peculiar to it. The two sticks in such a case are rolled up together.

If the message relates to an expiatory fight the messenger on delivering his stick says, "*Dŭdla*," which means "fight."

The two above-mentioned kinds of sticks are shown in Plate XIV. The figs. 9 and 10 represent the two sides of a corroboree stick.

In fig. 9 (*a*) represents the sender; the notches at (*b*) represents the singers; and at (*c*) the women, that is to say the women who perform the part of orchestra by drumming on their rolled up skin rugs; the other notches represent the men who will be present as dancers. In fig. 10 (*a*) represents the old men who are invited; (*b*) the women to accompany them, and (*c*) the men.

Figs. 11 and 12 represent the two sides of the initiation stick.

[1] I take this opportunity of correcting some inaccuracies in an account of this tribe which I gave on information furnished by the Rev. Julius Kühn, at p. 284, Appendix H, "Kamilaroi and Kurnai." The tribal name is that above given. It seems that the local and social divisions of the tribe are coincident. There were four of each. The social divisions (classes) are Kari = Emu, Waui = Red Kangaroo, Wilthūthū = Shark and Wiltū = Eaglehawk. Each class had a group of totems. The classes were not exogamous. Thus Kari might marry Kari as well as any other class. The children took the class name of their father. The only restriction upon marriage depended upon nearness of kinship.

In fig. 11 (*a*) is a large notch representing the sender of the message, the headman of the tribe; the two small notches alongside are two of the old men who will assist him in seeing that everything is conducted properly. The notches at (*b*) represent all the men of his moiety of the tribe who will assist at the ceremony. The five notches at (*c*) represent the boys who will be initiated, and the pairs of notches at (*d*) the five couples of men who are assigned to look after the five boys.[1] Fig. 12 represents the men of the other moiety of the tribe who are invited to assist; (*a*) representing the two old men of that moiety.

It seems from Mr. Sutton's statements that among the Adjadura there is an approach to a fixed rule according to which these sticks are marked. For the persons who send them, the persons who receive them and the matters to which they relate are pretty much always the same. The variations between one set of sticks and another would be in the relative number of the sets of individuals referred to. The names of the persons and the times and places referred to in the message would of course never appear upon the record of the message stick. Thus one can understand that such a stick could convey a certain amount of meaning definitely to an Adjadura headman independently of any verbal message.

Mr. Sutton says that the recipient of a message stick without a verbal message, must have some knowledge of what is wanted or of the subject to which it relates in order to explain it. As an illustration he said that he had once carried a message stick for one of the Adjadura which was merely a flat piece of wood with one notch at one end and two notches close together at the other. He delivered it without saying more than "This is from so-and-so," not having received any message with it. The recipient, however, knew that the sender had been separated from his wife, and he understood the marks on the stick to mean that the two had been reconciled again, and thus correctly read the message which was intended to be conveyed.

I have spoken of the emblematical tokens which some messengers carry. I may now add to those referred to an instance

[1] One of these two men is the boy's "father's brother," own or tribal. If there is no such person then the "mother's brother" is chosen own or tribal. In default of him some one nearly related is selected to act.

Here we have apparent the influence of descent counted through the father with a recourse in emergency to the female line. In most tribes, *e.g.*, the coast Murring, the two men who look after the novice would be of the opposite moiety of the tribe to which he belongs. The men of one moiety initiate the boys of the other. That is to say that moiety which has to provide wives for the men of the other moiety have the right of saying when those youths shall be permitted to exercise the privileges of manhood.

from a tribe on the northern shores of Australia, which combines the features of both the message stick and the token.

Mr. E. O. Robinson, of Coburg Peninsula, wrote to me to the following effect. The tribe there is known by two names, Öirig and Mananelo. In fact, however, these names are the designations of the two divisions of the tribe, and as it seems the local divisions and not class divisions, such as are found elsewhere. Information is conveyed by means of sticks about eighteen inches in length, and one-third of an inch in diameter. Such a stick is not carved or marked, but a bunch of feathers like a plume is tied on one end.

A stick dressed with white feathers is a token of peace and a call to a friendly meeting or a corroboree. The sender is usually the head of a family. There is not any rule as to sending such a message by any particular person. Any one can carry it, even a woman. If the recipient of the stick accepts the invitation, he keeps it, and the time of meeting is arranged. If he is not inclined to be friendly, he breaks the stick, or he pulls off the feathers and replaces them with coloured ones and sends it back. This means war.

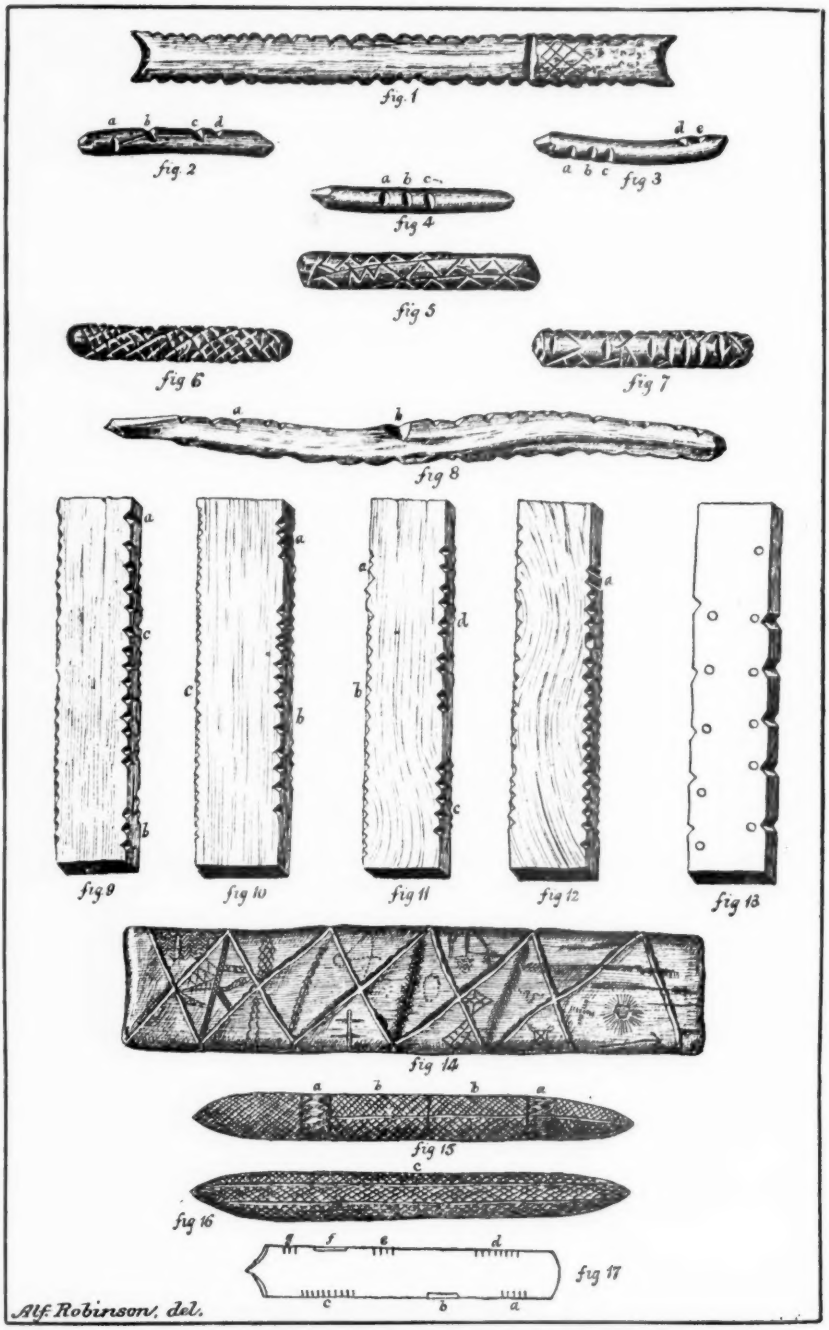
Mr. Robinson gave the following illustration:—

In 1879, when on his return from Port Darwin, he found two such sticks dressed with coloured feathers in his camp at Croker Island. Shortly before this his partner had been killed by the blacks. Mr. Robinson's two blackboys at first thought that the sticks were to tell them that some black fellow was dead. But on further examination of them, they said, "Black fellow not dead—only gone."

It turned out afterwards that the news intended to be conveyed was, that one black fellow had died, one had been killed by Mr. Robinson's partner, and a woman had been killed by some other blacks. The sticks had been left, where found, to tell his two men of these deaths.

I have now detailed the evidence, which I have before me, bearing upon message sticks, and upon the manner and degree in which the markings upon them are designed to convey information to the persons receiving them. Very much more evidence might be collected. My evidence, although collected from places spread over a large part of Eastern Australia, leaves vast areas untouched, and does not at all show what the practice is in the western half of the continent. Yet I venture to think that the facts which I have recorded in these notes, will enable anthropologists to arrive at a fair degree of certainty as to the general practice, and also as to how far a message stick can be used to carry information from one person to another.

It seems to me that so far as the evidence goes, it may be




AUSTRALIAN MESSAGE STICKS.

concluded with some degree of safety, that there is no recognised system of marks which serves to convey information without an accompanying verbal message. The stick with its markings is a kind of tally to keep record of the various points or heads of the message, and is merely an *aide mémoire*. There is no reason to believe that any of the markings are anything but arbitrary, and many of these shown in the illustrations are merely ornamental.

But when persons have been in frequent communication with each other by means of message sticks, and are acquainted generally with each other's concerns, it is quite possible for one of them through familiarity with the system usually followed by his correspondent, to give a guess with more or less certainty at the probable meaning of any marked stick sent to him. Thus, for instance, the partial reading by the Dalebura men of the Mundainbura message stick, the statement by the Chepara that their Kabugal-bageru sticks were always marked in the same manner, and the definite arrangement of the marks on the two message sticks of the Adjadura, lead to the belief that there is a tendency for the markings to acquire a definite position in certain kinds of message sticks, and, therefore, also a definite meaning.

If this is so, we have in this what seems to be a first step towards the ultimate result of a system of writing, where symbols might bear some resemblance to the original notches made upon the message stick.

### *Description of Plate XIV.*

Fig. 1. Message stick of Woiworung tribe, Victoria, to collect an assembly for corroboree. The reverse is plain. Scale one-half linear.

Figs. 2 and 3. Message stick of Tongaranka tribe, New South Wales, relating to initiation ceremonies. Fig. 3 (*a*), (*b*), (*c*), the sender of the message and his two brothers; (*d*), (*e*), two old men with the sender.

Fig. 2. Reverse of fig. 3. (*a*), the recipient of the message (*c*), the son of (*d*), (*a*), (*b*), two boys to be initiated with (*c*). Half scale.

Fig. 4. Message stick from a man of the Tongaranka tribe, (*a*) the sender of the message, (*b*), (*c*) the two men initiated by (*a*) to meet him.

Fig. 5. Message stick sent by a man of the Maikulon tribe, to a man of the Maiapi tribe in Northern Queensland, as a friendly reminder. Half scale.

Figs. 6 and 7. Message stick sent by a man at the Flinders

River in North Queensland, to a friend at the Mitchell River to inform him that his wife was ill. Half scale.

Fig. 8. Message stick of the Wotjoballuk tribe, Victoria, sent to invite an assembly for corroboree; (*a*) the sender of the message and four friends, (*c*) the recipient. The other notches indicate that all the people with (*b*) are to attend. Half scale.

Figs. 9 and 10. Message stick for corroboree of the Adjadura tribe in South Australia. Fig. 9 (*a*) the sender of message, (*b*) the singers, (*c*) women; other notches the dancers. Fig. 10 (*a*) the old men invited, (*b*) women and, (*c*) the men with (*a*). One-fourth scale.

Figs. 11 and 12. Message stick for initiation of the Adjadura tribe. Fig. 11 (*a*) sender of the message and the friends, (*b*) all the men with (*a*), (*c*) five boys to be initiated, (*d*) ten men to look after (*c*) during the ceremonies. Fig. 12 (*a*) the two old men who are invited. The remainder of the notches represent the men with (*a*). One-fourth scale.

Fig. 13. Message stick of the Mundainbura tribe, Queensland, inviting to a corroboree. Upper line of notches represent men of the Kurgila clan, upper line of dots, men of the Kunbe clan, lower line of dots, men of the Wungu clan, and the lower line of notches men of the Kuburu clan. One-fourth scale.

Fig. 14. Message stick of the Chepara tribe, Queensland, calling upon that part of the tribe which received it to attend for corroboree, or for initiation ceremonies. One-fourth scale.

Figs. 15 and 16. Message stick from a man of the Wakelbura tribe, to a man of the Yangebura tribe, Queensland, inviting him to visit the sender to hunt for game near a certain wire netting fence erected on a sheep run, (*a*) Emu, (*b*) Wallaby, (*c*) the wire netting fence. One-fourth scale.

Fig. 17. Message stick as used by the Turribul tribe in Queensland, representing a message from one man to another, (*a*) the distance of the sender from recipient of the message in stages (camps), (*b*) a break in the message, (*c*) the persons camped with (*a*), (*d*) period in days after which the sender will visit the recipient, (*e*) four articles which the sender requests may be sent to him, (*f*) a break in the message, (*g*) persons with the recipient after whom the sender enquires. One-fourth scale.

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Dr. J. G. Garson exhibited and described a new form of anthropometric apparatus specially designed for the use of travellers. The description will appear in a future number.

JANUARY 8TH, 1889.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the AUTHOR.—The Language of Palæolithic Man. By Daniel G. Brinton, M.D.

—— Description of Exhibit made by the Department of Prehistoric Anthropology in the National Museum at the Ohio Valley and Central States Exposition in Cincinatti, Ohio, 1888. By Thomas Wilson, Honorary Curator.

—— Megalithic Monuments of Brittany. By Thomas Wilson.

—— Les Silex de Bréonio. By M. Thomas Wilson.

From DAVID MACRITCHIE, ESQ.—Journal of the Gypsy Lore Society. Vol. i. No. 3.

From Professor AGASSIZ.—Annual Report of the Curator of the Museum of Comparative Zoology at Harvard College, to the President and Fellows of Harvard College, for 1887-88.

From the AUTHOR.—Burial Mounds of the Northern Section of the United States. By Cyrus Thomas.

—— Pictography and Shamnistic Rites of the Ojibwa. By W. J. Hoffman, M.D.

—— Folk-lore of the Pennsylvania Germans. By W. J. Hoffman, M.D.

—— Paleoethnologia Portugueza. Les Ages Préhistoriques de l'Espagne et du Portugal de M. Émile Cartailhac. Por Ricardo Severo.

From the SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. v. No. 1.

From the ANTHROPOLOGICAL SOCIETY OF WASHINGTON.—The American Anthropologist. Vol. i. No. 4.

From the SECRETARY OF THE COMMONWEALTH OF MASSACHUSETTS.—Forty-sixth Report to the Legislature of Massachusetts relating to the Registry and return of Births, Marriages, and Deaths in the Commonwealth, for the year ending December 31st, 1887.

From the ACADEMY.—Rocznik Zarzadu Akademii Umiejętnośc w Krakowie. Rok 1887.

—— Zbiór Wiadomości do Antropologii Krajowej wydawany staraniem Komisyi Antropologicznej Akademii Umiejętności w Krakowie. Tom. xii.

From the SOCIETY.—Proceedings of the Royal Society. No. 272.
—— Journal and Proceedings of the Royal Society of New South Wales. Vol. xxii. Part I.
—— Journal of the Society of Arts. Nos. 1882–1885.
—— Proceedings of the Royal Geographical Society. Vol. xi. No. 1.
—— Bulletin de la Société Impériale des Naturalistes de Moscou. 1888. No. 3.
From the SOCIETY.—Bulletin de la Société de Borda, Dax. 1888. No. 4.
—— Mittheilungen der Anthropologischen Gesellschaft in Wien. xviii Band. Heft 4.
From the EDITOR.—The Journal of Mental Science. No. 112.
—— Bullettino di Paletnologia Italiana. Tomo iv. N. 9 e 10.
—— Nature. Nos. 998–1001.
—— The Photographic Times. Nos. 376–379.
—— Science. Nos. 304–308.
—— Revue Scientifique. Tome xlii. Nos. 24–26.

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The following paper was read by the Author:—

## *The* DISTRIBUTION *and* DENSITY *of the* OLD BRITISH POPULATION OF HAMPSHIRE.

By T. W. SHORE, F.G.S., F.C.S.

[WITH PLATES XV AND XVI.]

THE subject I wish to bring before you is this: Have we any means still remaining in such a county as Hampshire of estimating approximately the distribution and density of the population which preceded the Roman invasion?

I think we may assume that the number of inhabitants any area of England supported in British time must have depended mainly on the food supply, so that if we could show that one area naturally produced more food than another of equal extent, we might reasonably conclude that the former would attract to it a larger population than the latter. It appears to me extremely probable that the shores of Southampton Water with its sheltered situation, its unique double tides, its abundant fish supply and the rich land along the courses of its tributary streams, must have attracted a relatively large population from the time of the earliest settlements of man in Britain. There are remains still existing and indications which are brought to light from time to time, which show that a very considerable pre-Roman population did live near these shores. We know that the gravel terraces along its banks and those of its tributary streams were their usual habitable sites, and there are earthworks of British date and

traces of others remaining at no great distance from this estuary. It is however mainly on the earthworks, and not on the food supply alone of any favoured area, that I wish to ground my argument.

We have in Hampshire about forty British earthworks remaining in a more or less complete state of preservation. That others formerly existed in this county is certain from the partial traces which still remain of them in historical references, in place names supported by circumstantial evidence, or in field evidence.

These earthworks of Hampshire are of various kinds and shapes, and where they inclose areas and form the so-called camps they are of widely different dimensions. Most of them are hill fortresses, either found on the tops of considerable hills or on rising ground conveniently near to the districts which they were, as I think, intended to protect. We have also marsh fortresses and peninsular fortresses, and in the New Forest one if not more examples of insular refuges, where as a defence for one or more small communities, mounds partly artificial, exist in bogs. In one case such a mound exists in what was formerly a small lake, and which might easily be re-converted into a lake at the present time.

The surroundings of the Hampshire earthworks at the present time, help us to form an opinion as to the purposes they were intended to serve. The forests which existed near them, have for the most part passed away, but the variations in hill and dale which we see now, are the same, and the geological conditions connected with the dry-chalk hills, or with the chalk streams, and the alluvial meadow land through which they flow are the same as in prehistoric time. As we stand within the area of any one of these intrenched inclosures, and consider the probable purposes it was intended to serve, the natural features of the country in which it was placed, and the geological circumstances connected with these surroundings, will be found to be very important considerations. I have endeavoured to discover the purposes for which the Hampshire earthworks were constructed, by a careful study of these considerations. These camps could scarcely have been permanently inhabited sites, for very few traces of dwellings or articles of common domestic use such as have been found abundantly elsewhere in the county, have been found within them. They could not have been constructed by passing bodies of armed men, for the labour involved, would have been far too great for a passing shelter.

There is but one other object, as far as I can see, for which they could have been constructed, that is as strongholds of defence or places of refuge in case of attack, for the people who lived near them.

If this was the purpose of their construction, then I think these entrenched areas must have had a distinct reference to the number of people required for their defence, and to the population, and their capital, or head of cattle they were intended to shelter. We can scarcely imagine that any British or other community, whether what we understand by a village community, or an aggregation of such communities, would construct a defensive earthwork such as one of these camps, larger than their requirements for shelter, or larger than their power of defence. Otherwise such a large camp would be a source of weakness to the people attacked, instead of a tower of strength. If these considerations are allowed, then I think we may draw some fairly correct inferences concerning the relative, and perhaps concerning the absolute density of the old British population, within reach of these strongholds, from the positions of the camps, the extent of their intrenchments, and the areas of their inclosures.

The largest Hampshire camps are placed where large open areas must have existed, and the smallest of them are in situations from which we can see even at the present day, they could have had no great clearings near them, and documentary evidence concerning the extent of the ancient forests confirms this. The smallest of the earthworks are but forest forts, while the largest are on some of the highest positions of the chalk hills, with extensive areas of down land and meadow land, generally alluvial meadow land, near them.

The consideration of the water supply for such intrenched hill fortresses as exist on the higher parts of the chalk downs, is one which is important, and may help in determining their uses. I have met with no remains of permanent buildings such as exist at Old Sarum, within any Hampshire intrenchment except at Merdon which was used as a Norman fortress, and only in two of the smallest of these camps in addition to Merdon, viz., those at Ashley, and at Woodgarston, have I met with wells within the inclosed areas.

All the remaining camps that can be described as hill fortresses, either have at the present time dew ponds, or cloud ponds as they are sometimes called within or near them, or have remains which show the probable former existence of such ponds.

Most of our high ground in Hampshire is capped with Tertiary débris resting on chalk, commonly consisting of clay with flints, so that there being usually plenty of clay, such ponds might easily have been formed. Our system of water supply on the highest parts of the chalk downs of Hampshire at the present day, is by dew ponds. The dew ponds within or near several of the larger Hampshire camps at the present time, are sufficient for

the water supply of some hundreds of sheep, even in the heat of summer. Many of these dew ponds have never been known to be dry. There is no reason to suppose therefore that a temporary water supply, sufficient for a large defending force, could not be had by the construction near the camps of as many dew ponds as were required. I am of opinion that the use of dew ponds as a method of water supply, is itself a British survival.

The largest Hampshire camp is Walbury (Pl. XV) at the north-west corner of the county, and partly in Berkshire. It overlooks the extensive valley of the Kennet, and is constructed on the high ridge of chalk down between this valley on the north and the dry chalk valley of Combe on the south. It has a natural scarp as a defence on three sides. Its dimensions are 550 yards from north to south, and 783 yards between the two gates or openings nearly east and west. Its area has been cultivated as arable land, but is now waste, and is covered with such an immense quantity of flint as would have formed an inexhaustible supply for flint weapons, sling stones, and other articles of stone warfare. Stone implements of various kinds, such as neatly trimmed spear heads, cores, flakes, and arrow tips, have all been found within the area of Walbury and many other implements of the later stone age have been found in parts of the country within easy access of it, both in the Kennet valley, and on the chalk downs, and in the vales on the south, leaving no doubt of its use during the later British stone age. The people for whom it was a camp of refuge, must have inhabited the great valley it overlooks on the north, as well as the chalk vales on the south. It contains within its area or just outside its ditch, several dew ponds at the present time, and the highest part of its area is the highest elevation the chalk anywhere attains in England, viz., 974 feet above Ordnance datum. Walbury would certainly have formed a shelter for some thousands of men in addition to women and children, and also cattle. If we take the computation adopted by General Pitt-Rivers, in considering the probable garrison of Cissbury Camp in Sussex[1], viz., the lowest computation according to modern notions, two men for every yard of parapet, and one third more as a reserve, then as Walbury has about 2,100 yards of parapet, it would require a garrison of 5,600 men. Within reach of this camp there certainly is on the north, a large area of land capable of affording food supplies for a large tribe, and there are fertile valleys on the south. As I stand within the area of Walbury and view the country it commands north and

[1] "Examination of the Hill Forts of Sussex," by Colonel A. H. Lane Fox, (Gen. Pitt-Rivers), p. 23.

south, I see no difficulty in believing that it was a tribal camp of refuge, for some thousands of men and women with their families and cattle, and from its extent, its position, and the nature of the country within easy access of it, I am of opinion that a relatively large population lived around Walbury during the British stone age, and probably later.

I think this population was considerably greater than that which lived in the Itchen valley round St. Catherine's Hill close to Winchester, because the earthwork at Walbury is much larger than that on St. Catherine's Hill. As regards the probable food supply also, the contracted valley of the Itchen near St. Catherine's Hill, could scarcely have supported so large a population as the much more extensive Kennet valley near Walbury.

The earthwork on St. Catherine's Hill is, however, a large camp, and if we apply to it the same calculation as to the number of men required for its defence according to the figures mentioned by General Pitt-Rivers in relation to modern warfare, it would require about 3,300 men for its full defence. St. Catherine's Hill Camp is the only large earthwork in the Itchen valley remaining at the present time, but there are indications that a smaller one may have existed at Bishopstoke, about six miles lower down. I can quite believe that a British population able to find 3,000 fighting men for the defence of St. Catherine's Hill may have found subsistence in the Itchen valley north and south of this fortress, and within reach of its defences in case of need. Although its elevation is only 327 feet, a permanent dew pond sufficient for a flock of sheep is found at no great distance from it, and the Itchen flows past the foot of this steep hill.

In the valley of the Test and its branch the Anton, south of Andover, we have the hill fortresses of Bury Hill about a mile and a half south west of Andover, Danebury about six miles south of it, between the valley of the Test on the east, and Wallop valley on the west, and Woolbury about two miles east of Stockbridge on the opposite side of the river, nearly six miles from Danebury, and about eight from Bury Hill. Danebury differs from the others in having several lines of defence, and its interior ramparts and fosses of great height and depth, as much as thirty feet. From these and other indications, and from articles of the Roman period having been found within it, it is probable that it was occupied and strengthened in Roman time. There are proofs also that Bury Hill was similarly occupied, but I do not think that such a later occupation casts any doubt on the British origin of these strongholds, for they are typical British camps, and not Roman earthworks, and one of them, Bury Hill, has a Roman earthwork at its base between it and the

river. As these three British camps are of about the same area and extent, I draw the conclusion that a population numerically about the same lived within reach of them.

In the valley of the Micheldever stream, a branch of the Test, there are the remains of two camps of about the same size known as Tidbury and Norsbury, similarly situated on high ground at no great distance from the stream, one about five miles higher up the river than the other. I consider they formed camps of refuge for a clan or small tribe of British people numerically about the same.

As far as I am able to judge from the appearance of the country at the present day, I am inclined to think that the area of the country suitable for cattle grazing round such a camp as St. Catherine's Hill, would in British time have been about as much larger than the cattle grazing area within reach of such a camp as Norsbury, as St. Catherine's Hill Camp is larger than Norsbury Camp, and I think the populations inhabiting these areas must have been about in the same proportion.

Perhaps the best example of a Hampshire camp conveniently situated as stronghold for its district, is that afforded by Old Winchester Hill in the valley of the Meon. This is the only earthwork in the district, and the upper part of the valley which it overlooks has a winding course from East Meon to Droxford. The stream first flows north, then west, south west, and south, and the earthwork known as Old Winchester is conveniently placed on the highest and strongest position of the district, 653 feet above the sea, and owing to the winding of the valley about equidistant from different parts of the valley on the east, north, west and south west. This was the part of Hampshire occupied by the Jutes after the West Saxon conquest, and their settlement included the entire valley southwards to the sea near Titchfield. Old Winchester in the upper part of this valley, was clearly the stronghold of the British tribe that preceded the Jutes. Its ramparts are about 1,000 yards in extent, and no doubt were stockaded. If we apply the same lowest modern computation to these ancient defences, viz., two men to a yard of parapet, and one third more in reserve, then Old Winchester when fully defended would require a force of 2,666 men. We know that the Jutes subsequently occupied the entire length of this valley, and it is extremely probable that the British tribe which preceded them did so likewise, for it was separated by forests from the other Hampshire valleys, as late as the middle ages.

From a careful consideration of the district, I have no doubt that this fertile valley could have supported a British tribe sufficiently numerous to defend this fortress, and whether we

take the modern figures suggested by General Pitt-Rivers, or a lower calculation, we have I think in the fortress of Old Winchester, a means of estimating approximately the density of the old British population in the valley of the Meon.

The pensinular earthwork of Bransbury at the junction of the Mecheldever stream with the Upper Test, is a fortification of much interest, inclosing a considerable area by a single entrenchment, consisting of a deep outer ditch and a bank constructed straight from marsh to marsh, and as we may probably consider the marshes of the Test and its tributary stream, to have been impassable in the British stone age, I think Bransbury was a camp of refuge, perhaps as a second line of defence, for a population sufficiently numerous at least, to have been able to defend its ramparts and fosse.

I do not think there is any evidence to be found in Hampshire of the extermination of the British population by their Anglo-Saxon conquerers, but on the contrary I think there is considerable evidence to be found in that county for the opposite view, that a portion of the British population was spared, and subsequently became blended with the Saxon race. Nearly all the water place-names are of Celtic origin, and we have traces of village communities within easy reach of hill fortresses. In some cases the traces of communal arable fields are found almost close to the old British earthworks, and far distant from the nearest of the existing villages. In one instance at least the hill fortress for defence, appears to have been continued in a modified condition into early Anglo-Saxon time, viz., that of Burghclere, or Boroughclere, a place which certainly derived its name from two British camps on high hills, on either side of the narrow valley, which forms the only natural pass for many miles from the Berkshire country into this part of Hampshire, and which was a place where toll was taken as late as the date of the Doomsday Survey. The existence of the Burghclere earthworks, the only large camps between Silchester and Walbury, proves I think that the clearing in this part of the great northern forest of Hampshire round these earthworks, whether wholly natural, or partly artificial, is as old as British time, and that a population which we may perhaps estimate by the size of the earthworks, lived within reach of them. On several sides of these earthworks the remains of many small communal fields may be traced on the hill slopes, and in one of the valleys much black earth resting on chalk and probably connected with habitations here, may be seen, close to the outlines of the communal fields. Close here also on the south, are the well-known Seven Barrows of North Hampshire. One of the most ancient roads in the county also leads from these camps direct to Walbury in the

north-west. The undoubted signs of former inhabitants in the valleys near the Burghclere earthworks, seem to me to throw a light on their probable uses, and the comparatively large size of these earthworks, appears to me to denote that a relatively large population sufficient to defend them lived about here in the Clere district, a British forest clan or tribe, living in perhaps the earliest forest clearing we can trace in Hampshire.

The allodial tax, known in Anglo-Saxon time as Burh-bote, for repairing local defences, becomes a very intelligible tax, when considered in reference to such a place as Burghclere, and may have been derived as a survival from the common defence of British strongholds. It must be remembered also that the allodial tenure of land is the most ancient tenure in this country of which we have any knowledge. The best example I have met with in the county is that in the Isle of Wight, where as late as the Doomsday Survey a large number of manors were held allodially.

I think there can be no doubt that the earliest fortification at Carisbrook was constructed in British time, and that the allodial obligation attaching to the Isle of Wight manors in the time of the Survey, were connected with its defence, the one great stronghold in the island. Certainly in succeeding ages the manors in the island were held by the tenure of defending Carisbrook Castle.

It is not difficult to realise that as land gradually ceased to be held in community, and became held in severality, the obligation of local defence would remain attached to the land.

In a county which contains so many visible remains of ancient British life as Hampshire, in its earthworks, and hundreds of existing barrows and tumuli, and which contains also surviving British customs, and place-names, it is difficult to realise how these names and customs could have endured except on the supposition that a part of the British population became blended with the West Saxon race, and so transmitted their customs and names, and as I think, in part, their religion.

I may here remark that the usual local name for an earthwork in Hampshire is *castle*, a name not without its significance as a place of local defence, in the folk lore of the country.

One of the most remarkable of the Hampshire earthworks in some respects, is that of Merdon, now inclosed within the park of Hursley near Winchester, which is also the name of the parish, but the name of the manor is derived from Merdon the name of the earthwork. On the lands of this manor the custom of Borough English still survives, and in this instance there can I think be no doubt, that we have a

venerable British custom surviving on the land which gets its manorial name from a British earthwork.

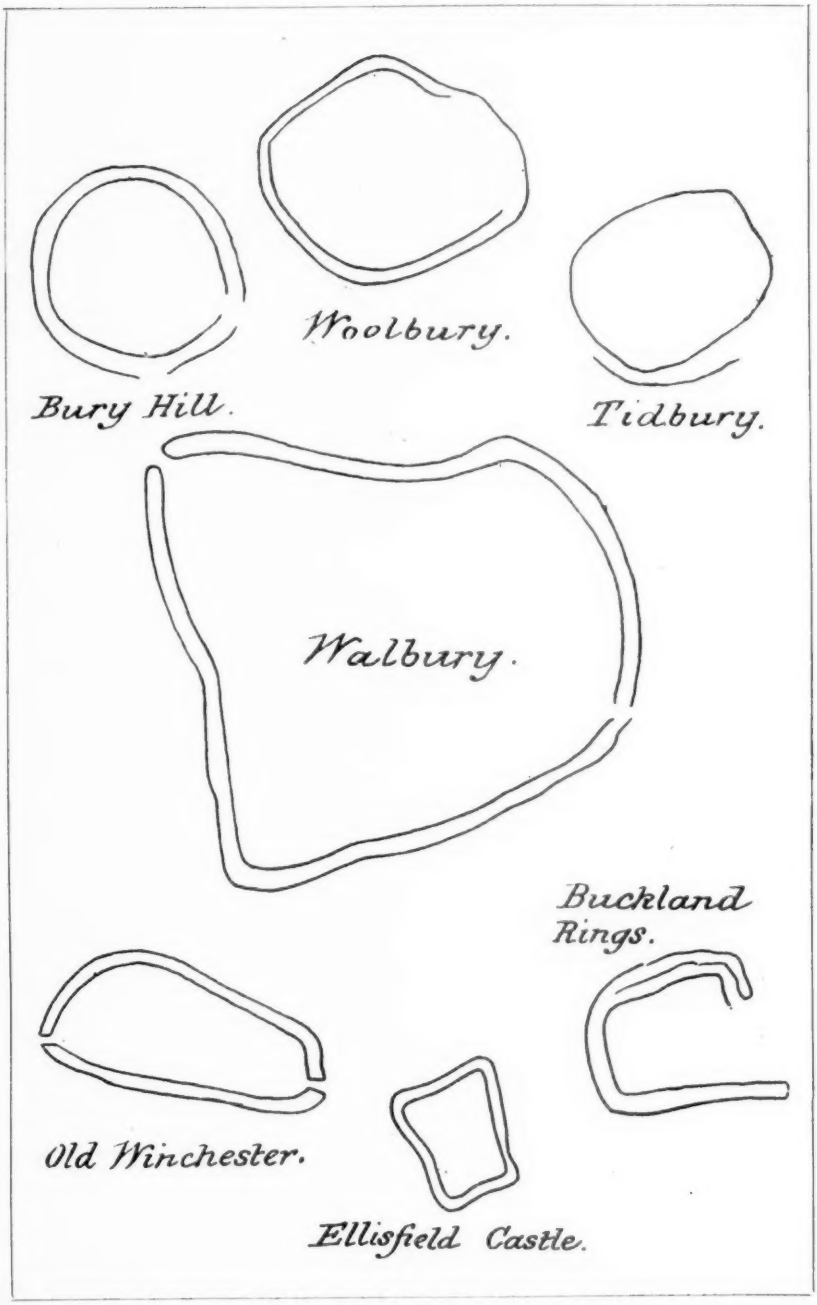
I think that comparatively large populations lived within reach of the Hampshire earthworks in British time, and that they were their camps of refuge, or local defences in tribal or intestine wars, perhaps clan wars. The British inhabitants of Hampshire do not appear to me to have advanced beyond the clan or tribal condition in pre-Roman time.

The geographical distribution of our Hampshire earthworks is the geographical distribution of our river valleys. The intervening stretches of ancient forest land is, for the most part, free from remains of ancient earthworks, which are found overlooking the river valleys, or those dry upper valleys a little above the permanent sources of the streams. The British settlements were evidently regulated by food supply, and I think the geological surroundings of these settlements show that the necessary food for cattle was a first consideration.

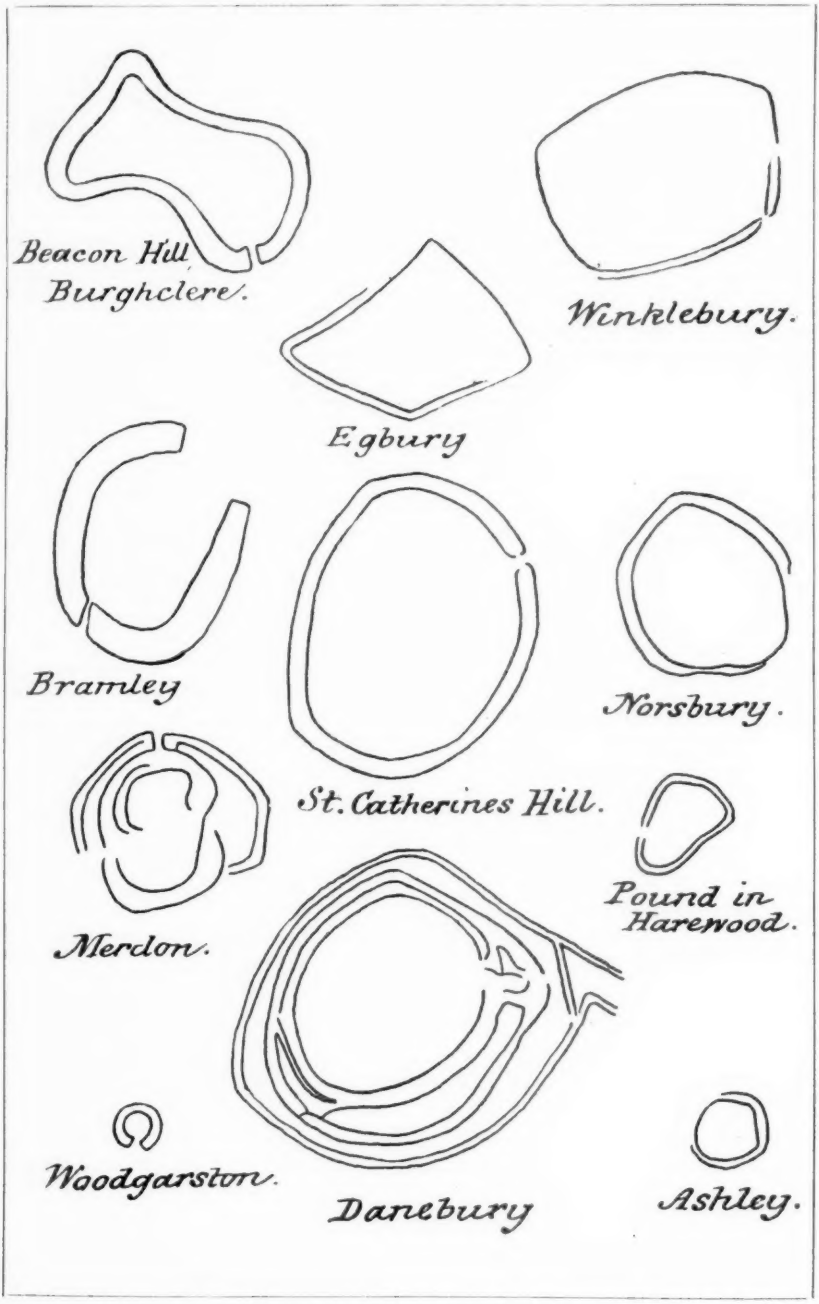
We have in Hampshire some remarkable British burial sites, viz., those like the site of the Seven Barrows south of Burghclere, just above the highest sources of the streams. One of these has lately been discovered at Dummer on the watershed between the dry upper valley of the Loddon and a dry upper valley of the Itchen basin. On this site thirteen cinerary urns of a very early type have been found within a few square yards, and it is probable that others will be found when our exploration is renewed in the spring. The old name of this parish, *Dun*mer, would appear to denote the former existence here of a dun or earthwork that has long since disappeared.

There is a scrap of evidence of a documentary kind bearing on the subject of this paper, which is quoted by Dr. Beddoe, in his book on "The Races of Britain,"[1] and which, as I have been unable to consult the original, I may perhaps be allowed to quote on his authority, viz., an extract from the Welsh Triads, in which the Belgæ are referred to as inhabiting that part of Britain called the "Arlechwedd Galedin," extending from Kent to Somerset, and in which these Belgæ are described as "the refuge taking men of Galedin." From a careful study of the earthworks of Hampshire and some others in the neighbouring counties, I can come to no other conclusion, than that these earthworks were camps of refuge, and as such I think there can be no doubt they were constructed with a distinct reference to the number of people who would defend them, and whom they were designed to protect. Flint flakes may be found in or near these camps at the present day, and occasionally other

[1] Beddoe, "The Races of Britain," p. 23, quoting from the Iolo MSS., p. 477.




PLANS OF EARTH-WORKS IN HAMPSHIRE.




PLANS OF EARTH-WORKS IN HAMPSHIRE.

evidences of Neolithic stone workers may be found, from which it appears that they were constructed in the British stone age. It is certain however that many of them were used as late as the time of the Roman occupation.

### *Description of Plates XV and XVI.*

The accompanying plates show the relative sizes of some of the Hampshire camps and also their shapes. These outlines have been traced from the six-inch Ordnance map of Hampshire, and the reader is referred to that map for further details concerning the surroundings of the earthworks, and for their heights above ordnance datum. The ramparts and fosses of some of the camps are now covered with wood.

The following are the references to the sheets of the six-inch Ordnance map of Hampshire, on which the outlines of these earthworks will be found.

| Earthwork. | No. of Sheet on the Hampshire six-inch Map. |
|---|---|
| Walbury .. .. .. | II. |
| Woolbury .. .. .. | XXXII. |
| Bury Hill .. .. .. | XXIII. |
| Tidbury .. .. .. | XXIV. |
| Old Winchester .. .. | LIX. |
| Buckland Rings .. .. | LXXX. |
| Ellisfield Castle .. .. | XXVI. |
| St. Catherine's Hill .. .. | L. |
| Beacon Hill, Burghclere .. | VIII. |
| Egbury .. .. .. | XVI. |
| Winklebury .. .. .. | XVIII. |
| Bramley .. .. .. | XI. |
| Norsbury .. .. .. | XXXIII. |
| Merdon .. .. .. | XLIX. |
| Danebury .. .. .. | XXXI. |
| Pound in Harewood .. .. | XXIV. |
| Ashley.. .. .. .. | XL. |
| Woodgarston .. .. .. | X. |

### Discussion.

Mr. R. B. Holt agreed with the reader of the paper that the Hampshire earthworks were places of defence and refuge. They would naturally be erected where there was the most danger. This was unquestionably in the north. Had Mr. Shore indicated their situations it would probably have appeared that the most important of them were, like Walbury, in that direction, being probably intended either to check the incursions of the Atrebatii, who inhabited the district immediately north of the hill range, and of

the tribes who lay beyond them; or else they were erected by the Britons to keep the Belgæ (Ravagers) within the bounds assigned to them. In either case a great part of the garrisons would come, when needed, from a distance. The numbers, therefore, which were required for their defence would hardly help us to estimate the local population. Winchester was probably a metropolis, even before the Saxon era, and consequently would be strongly fortified. The coast, too, would require protection, and there also are considerable earthworks.

Mr. A. Lewis said the only one of the earthworks mentioned by the author with which he was personally acquainted was St. Catherine's Hill, near Winchester, where he himself had picked up some worked flints. He agreed with Mr. Shore in thinking that the population of Britain in pre-historic times was larger than was generally supposed, but thought the size of the earthworks was governed by the formation of the ground as well as by the number of inhabitants. Mr. Lewis also referred to the conclusive evidence brought forward by General Pitt-Rivers as to the higher level of water in Wiltshire in Roman and pre-Roman times, as affecting the question of water supply for the camps, &c.

Professor Rupert Jones, referring to the old camps or hill-forts described by Mr. Shore in his very interesting paper, asked if the author had looked at them, and at their relative positions with reference to the old roadways and fords of the country. The speaker had seen in North Hants and in Berks that these camps or "castles" often (if not always) had a definite relation to roads and fords; and he thought that they probably served, not only for defence, but also for offence, among the ancient tribes. He also alluded to the various and sometimes apparently redundant ditches and banks of the old earthworks as noticed and described by his friend Colonel C. C. King.[1]

The Rev. Canon Benham, being called on by the Chairman, endorsed Mr. Shore's opinion that old Winchester was a British camp, a place of retreat for the inhabitants of the Meon Valley whenever a hostile force, whether inland or from across the sea, appeared to attack them. Meon was the name of the river which ran through the valley, and he believed that it meant "stony," referring to the flints which formed its bed. The village of Corhampton, at the foot of Old Winchester, commonly pronounced "Carmenton," and so called in Doomsday, he took to mean the "Camp of the Meon." Referring to another point raised by Mr. Shore, Canon Benham quoted from the Anglo-Saxon Chronicle the statement that when the South Saxons landed on the coast they slaughtered every Briton, but expressed his belief that however it might be in Sussex the West Saxons did nothing of the kind in Hampshire, and pointed to the curious fact that North Hampshire has so many churches

[1] In the "Trans. Newbury District Field Club," and the "Trans. Berks. Archæol. and Architec. Society."

dedicated to French saints. His theory was that on the arrival of the English settlers large numbers of the Belgæ removed into the woods of North Hants, and founded settlements of their own. He thought there were signs of a camp on Beacon Hill, opposite Old Winchester, though Mr. Shore doubted it.

Mr. T. V. Holmes remarked that the author would have added much to the interest of his valuable paper had he marked the positions of the various camps on a geologically coloured map. The speaker's own observations had given him the impression that their distribution was extremely irregular. For distances of many miles along the edge of the Chalk escarpment, for instance, none would appear, while further on, where combes tended to isolate a portion of the ridge, they abounded. To visit the three large Witshire camps of Bratton Castle, Battlesbury, and Scratchbery, for example, involved only a walk of about six miles, while in other localities, where naturally strong positions did not exist, they were few and far between. But he did not remember ever seeing a naturally strong site without a camp upon it. As regards the population necessary to garrison these camps, he thought any estimate would be erroneous that excluded women and children. For women and boys and girls of fourteen and upwards would be almost as efficient behind palisades as full-grown warriors, during a siege of short duration.

The Author, in reply, expressed his thanks for the friendly criticism with which the paper had been received. The occurrence of extensive intervening tracts of forest land between the rivers he thought, rendered it improbable that the British population was migratory. He pointed out that Walbury Camp was not on any British tribal boundary, but from being at the extreme northern limit of the watershed of the Test, its site had been adopted in Anglo-Saxon time as the northern limit of the county. He thought the higher water level in the chalk, which must have prevailed in British time, helped his argument by rendering the water supply to the hill fortresses an easier matter than it would be at the present day. He considered it likely that in the upper part of the Test valley where several earthworks are near together, the British clan living around them, might have had more than one castle of refuge. In reply to Professor Rupert Jones, the author said the Hampshire hill fortresses were similar to those in the north of Berkshire, and like them were connected by old British roads. Some of the deepest of hollow roads in the county were in the neighbourhood of these earthworks or where they formerly existed. In one instance he could show such a road that was described as a hollow way in an Anglo-Saxon charter. He had also observed that, in cases in which the earthworks are near streams, they are conveniently situated to the fords. The author thought the survival of a large number of place-names in Hampshire, and customs of a Celtic origin, with other evidence of a similar nature, proved conclusively that the British population of this county was not exter-

minated, notwithstanding the assertion to this effect of writers many centuries after the Anglo-Saxon conquest. In reply to Mr. Holmes, the author said there were many strong natural positions in Hampshire which had no remains of earthworks on them, but on some other similar sites old entrenchments had probably existed. The earthworks were not confined to any part of the county, but fairly distributed over it, having regard to the river valleys. In reply to an observation of the President as to the camps being at the same time a shelter for cattle, and a refuge for the people, the author thought that it was probable these stockaded enclosures would be used at times by the communities living quite close to them, to protect their "capital" against the cattle raiders of neighbouring clans, and that probably at other times these camps were more numerously manned for tribal defence. The author thought the great labour required to construct these earthworks, would only be undertaken by those who had families and homes to protect near them.

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MISS BUCKLAND then read the following paper:—

## *The* MONUMENT *known as* "KING ORRY'S GRAVE," *compared with Tumuli in* GLOUCESTERSHIRE.

By A. W. BUCKLAND.

[WITH PLATE XVII.]

IN 1887 I had an opportunity of visiting the ancient monument in the Isle of Man known locally as "King Orry's Grave," a name which is repudiated by antiquaries as misleading, but which having crept into guide books and even into archæological works, may perhaps be retained for the present, as until it received it, from some modern tourist, it appears to have been nameless, or to have been known only as the "*Cairn* on *Gretch veg*."

This monument which belongs evidently to that class denominated Long barrows, Chambered tumuli, Giant's graves, Hunne bedden, Allées couvertes, &c., according to the locality in which they are found, possesses certain peculiarities sufficiently uncommon to render it deserving of especial notice. The best description of it is given in *Oswald's Vestigia* as follows:—

"Another cairn of considerable dimensions stands on the farm of Critch (Gretch) veg. This example comprises a series of stones in the east, placed in a semi-lunar or circular form, from which a flat terrace of loose stones leads westward, to the brow of a ravine where it terminates in a large cairn of stones thirty feet in diameter, out of which rises a tall thin conical slab to the height of ten feet and upwards, in a picturesque manner. These two objects, the cairn on the west, and the semi-circle of stones on the east, are distant from each other upwards of forty yards.

The terrace connecting them is bisected by the high road, and on being opened, was found to be made up of two rows of immense flat boulders, placed edgeways, four feet apart, and inclining inwards towards each other so as to form an arch."

It does not seem easy at present to trace the plan of the monument as described by Oswald, but the tall monolith remains in position, and some of the chambers, especially at the west end are intact, although the covering stones are gone. Cumming, writing in 1848, says, "A few years back the owner of the property on which it stands, not having the fear of fairy or phynodorree before his eyes, but seeing the stones lying convenient for a fence he was building, set to work to remove some of the lesser, from the central heap of apparent rubbish in which they were fixed; in doing this he discovered a rude dome-shaped vault, in the centre of which was a kistvaen composed of two large slabs of schist, placed parallel to each other in a direction nearly east and west, but inclining towards each other above; at the extremities of which seem originally to have been placed vertically, thin slabs of the same rock which had been broken."

The distinctive features in this long chambered-tumulus, are first the tall thin monolith, composed like most of the monuments in the island, of slaty rock, and as far as I could see totally devoid of any markings or carving of any kind, and secondly the two stones in the centre of the vault, hollowed out so as to form an elliptic opening, in which respect and in some others, it resembles so nearly, similar monuments in Gloucestershire, as to make it almost certain that in each instance the same race were the constructors. Dr. Thurnam[1] has pointed out the singular distribution of these chambered Long Barrows, of which by far the larger number are found in Wiltshire, Gloucestershire, and in the adjacent parts of Dorset, and Somerset. Those which are found in the Midland Counties and Yorkshire he considers to belong to a different type, and those in the Scilly Islands, Wales, the Channel Islands, Brittany, the North of Scotland, the Orkney Islands and Ireland, although they are chambered barrows, are for the most part not long, but round. There are however true long-chambered barrows in Brittany, and that of Mané Lud, appears to bear a strong resemblance in form to "King Orry's Grave" as figured by Oswald; as does also the one at West Kennet, Wilts, but in both these the crescent at the east end and the tall monolith are wanting. One feature seems common to all these chambered tumuli, namely the dome-shaped roof of the chief chamber, formed by overlapping rows of stones capped by one broad flat stone, with a long low rudely arched gallery, leading from chamber to chamber. It is a mode of

[1] Archæologia, Vol. 42, Chambered Long Barrows.

building doubtless representative of the domestic architecture of the time, and Dr. Thurnam shows how closely it resembles the dwellings of the Esquimaux of the present day; but with regard to the entrance, there is considerable difference. Generally a curved wall of rubble or of standing stones leads to an entrance through a pair of upright stones joined together by another stone forming a trilithon like those of Stonehenge, though much smaller; and through this the principal chamber, usually at the east end of the barrow, is entered; but in a few instances the entrance is through an elliptical opening cut in two stones, as in that denominated King Orry's Grave. The number of these elliptical openings known may I think be counted on the fingers—three of them are in Gloucestershire at Rodmarton, Avening, and Leighterton, one is described by Mr. Lukis in Brittany, and besides these King Orry's Grave in the Isle of Man. The Men-an-Tol in Cornwall, and a similar holed stone now at the Museum of St. Germains, near Paris, probably (in the latter case certainly) formed the entrance to chambered tumuli, but in these cases the hole is round and cut in a single stone. Many other holed stones are known, in India, Peru, Brittany, Wales, Scotland, and I think also in Sweden, but they are not similar in form, and in most cases are too small to admit a body, appearing as in a state of survival, and originally representing probably the Eastern idea of a new birth. Dr. Thurnam supposed that these elliptical openings were made simply to allow of the burial of fresh bodies as required; but as that could have been effected much more easily by the trilithon arrangement, we may be allowed to suppose there must have been some mystic symbolism connected with this especial form, and when we consider the use of the egg, as the symbol of new birth, in Egypt and the East, as well as among those mysterious priests denominated Druids, a symbolism not yet extinct among us, as witness the Easter egg, we may I think be justified in supposing that these ovate openings to chambered tumuli were of especial significance, and reserved perhaps for the tombs of chiefs or of the priests.

The symbolism of these curious monuments known as long-barrows of varied form as regards internal arrangement, but almost always simulating externally the form of an egg or pear cut in half longitudinally, has not been sufficiently studied, but they appear to me to bear an evident allusion to sun worship. In the case of "King Orry's Grave" if the plan of Oswald is to be relied on, the moon would seem to be joined to the sun, by the long gallery connecting the crescent at the east end, with the circle at the west, whilst the chambers enclosed within the circular vault, are, as is generally the case, square, the form always symbolical of the nether world, the abode of the dead. With regard to the remains met with

in these chambered barrows, they everywhere consist of numerous skeletons, some in an imperfect condition as though not interred until after the removal of the flesh, and sometimes, though rarely, partially cremated; and in addition to these human remains there are usually found many bones of ox, deer, boar, and sometimes of horse and dog, and also flint flakes, and the tusks of boars perforated for use either as implements or ornaments, but never metal tools, although, from the persistent legends of treasure guarded by dragons, said to be buried in these tumuli, they have all probably been rifled. The animal remains are supposed to indicate sacrifices or funeral feasts, and are generally separate from the human remains, although in two or three cases bones of children and of young men have been found with these, indicating, as is supposed, human sacrifices of captives or slaves. In connection with this, a very curious fact is noticed by Thurnam, namely, that in a great majority of these chambered long barrows, some of the skulls are cut open (see Pl. XVII, fig. 4) ; four of these cleft skulls were found at Rodmarton, the supposition being that this was the mode of death adopted for human sacrifices, although it must certainly have required great strength and skill to have administered such a blow with a stone axe.

A very singular discovery which appears to me to bear upon this subject is reported to have been made in Peel Cathedral in 1871, where, in clearing away an accumulation of rubbish in one of the arched recesses of the chancel, a skeleton was discovered with the skull cleft in the manner described, and with it, the remains of a *dog*. From the place in which this skeleton was found it was presumed to be that of Bishop Simon the re-builder of the cathedral, and a tomb was erected over it accordingly, but the striking resemblance between King Orry's Grave and the tumulus at Rodmarton, where so many of these cleft skulls have been found, leads to the inference that this skeleton must have come originally from some chambered tumulus, of which King Orry's Grave is not the only one on the island, and buried later in the Cathedral as a Christian martyr. There is historical record of one such burial in England, for Leland relates that at Ludlow in clearing away in 1199 a chambered barrow, which formerly existed on the site of the present churchyard, three stone chambers or cists containing human remains were discovered, which the clergy of the place maintained were relics of three Irish saints, and buried them *within the Church*, where they wrought many miracles. Considering the connection of St. Patrick with the Cathedral at Peel, it seems probable that this body, disinterred from some tumulus, may also have been regarded as an Irish Saint and Martyr, and therefore buried in

the place of honour, and subsequently walled up with other relics at the time of the Reformation, and I believe also that a dim remembrance of the dog, buried with this supposed martyr, gave rise to the legend of the Moddy Dhoo, "the spectre hound of Man," immortalized by Sir Walter Scott. The finding of bones of the dog with the skeleton of the cleft skull, also strengthens the supposition that both came from some chambered tumulus, since in many of these, dogs are found buried with human remains.

There is, just outside Peel Castle a mound about 90 feet long known traditionally as the Giant's Grave, and although it is not known to have been explored, it seems possible that the skeleton referred to may have come from it.[1]

There is another cairn known as *Cashel Goree* about three miles north of that called "King Orry's Grave," which is described as a semi-circle of stones, from which proceed three rows of stone chambers in an easterly direction, and still another, now called the cloven stones, which from the description given of it by Cumming and Train seems to have been almost identical with "King Orry's Grave." Cumming says "In Douglas Road, about one mile from Laxey, there is on the southern side of a little ravine, a small circle of twelve stones, one of which, six feet high, is remarkable as being cloven from top to bottom. The tradition is, that a Welsh Prince was here slain in an invasion of the island, and that these stones mark the place of his interment. Mr. Feltham mentions the discovery in the centre of the circle, of a stone sepulchral chest or kistvaen, and in the view which he has given of it as existing at the time of his visit, there is a clear indication of a coved roof of stones, forming an arched vault in the centre of the mound."

This description is amplified by Train, who says:—"The circle was considered to be Druidical, but an excavation laid open a tumulus of about two hundred feet in diameter, exposing on two opposite sides of it the base of an arch, which in rough stone work was formerly sprung over the spot, inclosing an interior vault of fifteen feet square. Near the centre of the vault is a tomb of most singular and unique construction. Two large convex stones form the sides of this tomb. They measure nine feet in length by six feet broad, and eight inches in thickness. They evidently bear the marks of detached pieces of stone worn by the action of water into a flat ovate form, and made convex and concave not unlike the form of a clam shell; these are placed upon one edge about three feet apart at the bottom

[1] It may be of interest to note that the traditional giant of this grave is said to be the original of the three-legged Manxman, a legend which is suggestive of the many bodies found in these chambered tumuli, of which the legs are often found entire.

and inclining towards each other as they rise, leaving a small aperture at the top of a foot or eighteen inches in width. Over this in all probability, a thin cover stone had been laid, so that the tomb originally, was a case of concave stones like three clam shells so placed as to form an ovate space within their cavities. Within the vault human bones and teeth in considerable quantities have been found."

As regards the age of long barrows all antiquaries regard them as the earliest monuments known. Thurnam thinks there is evidence to prove that in Wiltshire and Gloucestershire they are older than the Belgic dykes, some of which make a curve to avoid them, and although the chambered long barrows are more recent in date than the *unchambered*, yet they are all believed to belong to the stone age. A piece of iron called a horse-shoe was indeed found in that known as "King Orry's Grave" but as this is a solitary instance, and the cairn had evidently been previously rifled, there is no evidence to prove that it belonged to the original interment.

The legend connecting the Cloven Stones with Wales, must also be noticed. There can be no doubt there was considerable intercourse between Wales and the Isle of Man in very early times, and it is just by that route that we should look for a connection between the island monuments and those which bear so very near a relationship to them in Gloucestershire; but as far as I am aware none of the Welsh tumuli are so nearly like those of Gloucestershire, as "King Orry's Grave," that which bears the nearest resemblance to them at Plas Newydd, Anglesea, differing in several particulars. Thurnam ascribes the Gloucestershire tumuli to the Dobuni, and as it is evident that a cognate people must have been the builders of those in the Isle of Man, the question arises whether they reached that island through Wales, or by a separate route from the continent of Europe, where in Brittany similar monuments are found. Again, the Isle of Man was also closely related to Ireland in prehistoric times, and there is evidence to prove that at one time a land connection existed between the two islands, although that perhaps had been broken up before either was inhabited by man. But neither in Ireland, nor in Scandinavia do we find monuments so nearly related to this long chambered barrow called "King Orry's Grave" as those of Gloucestershire and Wiltshire before referred to. The great chambered tumuli of Dowth and New Grange, in Ireland, and those in Scandinavia, Scotland, and elsewhere, although bearing some resemblance, differ much in form and arrangement, and in none, as far as I am aware, has this peculiar form of entrance, through the ovate opening cut in two stones, been found, whilst the sculpturings existing upon

them seem to denote that they belong to a later period. It is at all events evident that the monuments in the Isle of Man belong to a date far earlier than that assigned to them by those who would refer them to King Orry and his successors, and must be relegated to that shadowy time when Mananin, son of Lleir, ruled the island, and shrouded it in impenetrable mist from the outer world.

In the discussion which followed the reading of this paper at Bath, Sir John Lubbock spoke of the holes in grave stones in India and other parts of the world as undoubtedly made for the entrance and exit of the spirit of the deceased. This is an opinion which I hold as strongly as Sir John Lubbock, and which I have brought forward on more than one occasion before the Anthropological Institute, but the larger holes, such as those at Rodmarton, Avening, and "King Orry's Grave," seem to me to belong to a different class: the large opening, made with so much care and labour of a particular shape, would hardly have been cut in these huge stones, unless they had been intended to admit something more material than a spirit, and when we remember that only one of these occurs in the long barrow at Rodmarton, containing numerous separate graves with several entrances, it seems reasonable to suppose that this especial egg-shaped form had a sacred and symbolical meaning: it appears to me to be very evidently connected with the eastern doctrine of the new birth, and I would venture to suggest that possibly these tombs, the openings to which are always found so carefully closed with stones and rubble, were opened only for the burial of a ruler, and that his son or chosen successor, crept into the tomb, emerging from it in sight of the whole tribe, as the embodiment of the deceased ancestor. It will be remembered that Buckley in Australia was received as the embodied spirit of a certain man, because he had taken a spear which had been stuck in that man's grave, and it appears to me that these openings in early tombs are connected with a similar belief.

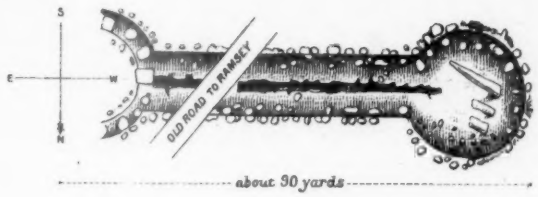
*Description of Plate XVII.*

Fig. 1. Plan of King Orry's Grave, from Oswald's "Vestigia."

Fig. 2. King Orry's Grave, showing the tall monolith at west end: the asterisk marks the stones in which the ovate opening is cut.

Fig. 3. Ovate opening in chambered tumulus at Rodmarton, Gloucestershire.

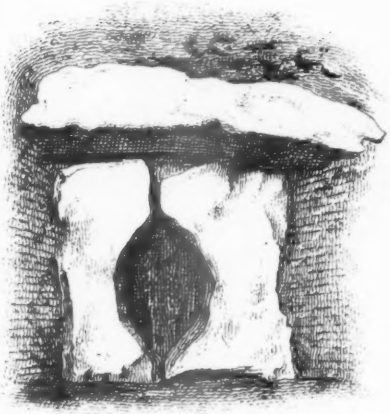
Fig. 4. Cleft skull from chambered tumulus at Rodmarton, apparently resembling the one at Peel, Isle of Man, buried as that of Bishop Simon. Four skulls similarly mutilated were found in the Rodmarton tumulus, and one or more in almost all the chambered long barrows explored by Thurnam.




about 90 yards

1

2



3

4

Scale, one quarter linear.

J. & W. Emslie, lith.

KING ORRY'S GRAVE, ISLE OF MAN,
AND REMAINS FROM RODMARTON, GLOUCESTERSHIRE.

### Discussion.

Mr. A. L. Lewis said he had visited "King Orry's Grave" 18 years ago, and had described it in the 3rd number of the *Journal* of the Institute, but Miss Buckland had brought forward an old description of it, with which he was not previously acquainted, and which was of interest and value as tending to show that "King Orry's Grave" was one of a number of sepulchres in close contiguity. He thought Miss Buckland had been misled with regard to the Manné Lud by an old and inaccurate plan, and he exhibited tracings of modern plans, which had been sent to him by Admiral Tremlett, which showed that there was no connection between the dolmen at the end of the mound and the central chamber, that it was not domed but flat roofed, and was sculptured, and of the usual type of dolmens in the Morbihan. He did not think that the Men-an-Tol in Cornwall had ever been in a very different condition from that it was in now: the hole in the stone there and other large holes in stones were probably connected with the idea of a new birth, but the small holes were more likely to be intended to enable the spirit to go in and out of the tomb, which was quite a different idea. The feature that had struck him most about the Manx dolmens was the standing stones outside them, which he thought were in the nature of headstones, and perhaps had Scandinavian affinities. He did not believe in a special race of dolmen builders, nor, he thought, did M. de Mortillet. The similarity between the curvilinear opening in "King Orry's Grave" and those in Gloucestershire was striking, and had been noticed before, but the dolmens which had any arrangement of the kind were so few in comparison to the vast number which had not that he did not think any system of symbolism could as yet be shown to exist in connection with them; the subject, however, was a very interesting one, and he hoped Miss Buckland would continue her researches into it.

Note.—Since reading the above paper, I have seen in the "Graphic" an article upon Irish antiquities, in which the author, speaking of holed stones in graves, mentions a statement of Pausanias, to the effect that the Greeks were accustomed to feed the spirits of heroes with blood which was poured through a hole in the tomb: this statement appears to me of great importance in connection with the smaller holes so frequently found in tombs, not only in our own country, but in India, and it would be interesting to discover whether any similar rites still exist in India, where, I believe, some of the holed stones are not of great age. This, however, would not affect the larger holes such as that of "King Orry's Grave," which were evidently used for other purposes.—A.W.B.

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The President announced that the annual general meeting would be held on Tuesday, January 22nd, and nominated Mr. E. W. Brabrook and Mr. R. B. Holt as auditors.

# *The* NICOBAR ISLANDERS.

By EDWARD HORACE MAN.

[WITH PLATES XVIII TO XXII.]

(*A Paper read before the Institute on June 26th*, 1888.)

## *Part I.*

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THERE may be said to remain at the present day but few races regarding whom accounts, more or less accurate, have not been published, but year by year the researches of Science reveal in clearer and yet clearer light the great care which is required of those who undertake the task of describing the condition and customs of uncivilised peoples, and it is now a recognised fact that any detailed report which is not based upon a long and intimate acquaintance with the language, as well as with the country and its inhabitants, must be received with extreme caution, so difficult is it for civilised man to appreciate the position and modes of thought of those in a lower scale than himself in the human family, not to mention those wild children of the forest whose wants are for the most part limited to the spontaneous products of the jungles, and whose knowledge of the past, present, and future has a not much wider range.

In 1871, when I was first appointed to the Nicobar Islands, I commenced a study of the dialect spoken by the natives living in the vicinity of the Government Settlement in Nancowry Harbour, with a view to facilitating ethnological researches among them. From that time to the present during my official residences in the group—of terms of varying duration, but amounting in all to nearly seven years—I have prepared a Vocabulary estimated to contain between 6,000 and 7,000 words of the language as spoken in the Central Group, besides collecting several hundred words of the five remaining dialects. The task, though not on untried ground, as in the case of my concurrent efforts in the same direction at the Andamans, was not lightened to any appreciable extent by the labours of others, for

the lists prepared by Fontana (1795), Barbe (1846), and the members of the Novara Expedition (1858), all of whom passed but a short time in the islands, were necessarily meagre and inaccurate; moreover, as they were not based on any recognised system of transliteration, and as the vowels were in no instance accentuated, it will be readily understood that the value of the contributions was considerably lessened.

The work of the late Mr. de Röepstorff[1]—assisted by his discovery, while on furlough in Europe, of the MS. list of Nicobarese words and translation of the Gospel, made nearly a century ago by the Moravian missionaries who laboured in this field for 19 years (1768–87)—marked a decided advance in our published knowledge of the dialect spoken in the Central Group.

It has been well said,[2] that to describe any language, "we must view it in relation to man generally, and to the particular race to which it belongs. We must first consider what the objects are which every language must accomplish; and next, the different degrees and modes in which those objects are accomplished in different classes, before we can appreciate the character of the particular tongue which may form the subject of our investigation"; these remarks are especially applicable to races which, like the Nicobarese, manifest in the structure of their language the external and alien influences which have been brought to bear upon them.

Among the many hindrances experienced in endeavouring to acquire a knowledge of the dialects of these islanders is the almost insurmountable one of obtaining the required information from persons whose articulation has not been materially affected by the frightful dental incrustation[3] which is so general among the adult population. This fact, when taken into consideration

[1] Between 1870, and the date of his tragic death in 1883, Mr. de Röepstorff was in charge of the Nicobar Settlement for six periods extending in all over some three and a quarter years, during which time he evinced a great interest in the natives, and devoted much time to the study of their language and mode of living; the results of his labours have been recorded in various contributions to the Journal of the Asiatic Society of Bengal, and in a posthumous work edited by his widow; but having to rely on his own resources for a system of transliterating the extensive variety of sounds—a large proportion of which comprise nasal diphthongs for which this dialect is remarkable—it is scarcely surprising that the principal defect in his laborious undertaking is due to an inadequate system of symbols. Mr. de R. so far recognised their insufficiency as to adopt a few changes at the last, but as he wrote to me a few days before his death he only aimed at preparing a vocabulary which would be useful to young students, and did not claim scientific accuracy for the system of transliteration upon which he finally determined.

[2] *Vide* "Journ. Ind. Arch.," 1869, p. 647. Logan.

[3] *Vide* "Teeth," p. 391, and "Deformations," *post.*

with the extensive range of sounds contained in the language[1]—a large proportion of which consist of nasal diphthongs—will proclaim the task of transliteration to be one requiring time and much careful study. With the valuable assistance of Mr. A. J. Ellis, F.R.S., the sounds found in use among the Nicobarese have been reduced to a system rendered by an alphabet of 60 letters, comprising 21 oral vowels and diphthongs, 14 nasal vowels and diphthongs, and 25 consonants.[2]

The natural reserve of the natives towards aliens in all matters connected with their religious beliefs, superstitions, and practices adds greatly to the difficulties to be overcome in studying the race and acquiring a fair knowledge of their language, and the result attained has been achieved only by dint of constant gifts and promises of further reward, whereby attendance more or less regular, if not attention, has been partially secured.[3]

"The native does not like to be questioned. He credits the white man with possessing almost universal information, and often imagines he is being made a fool of."[4] Thus writes a recent traveller in the New Britain Group, and the same remarks may be applied to the Nicobarese. It is, therefore, necessary to proceed with extreme caution, and to substantiate the information obtained from a variety of independent sources ere it can be finally accepted as worthy of credence.

But before we proceed to a consideration of the habits and customs of the Nicobarese it may be well to gain a general idea of the position of the group, and of the main points of interest connected with their past history so far as this is ascertainable from the accounts of early navigators and settlers.

A glance at the map (Pl. XVIII) will show the islands to be situated between the sixth and tenth degrees of north latitude and between the meridian of 92° 42′ and 94° E. of Greenwich; they thus lie midway between Little Andaman and Acheen, and form, with the Andamans, Coco and Preparis Islands, a series, as it

[1] "The language used by the Nicobarians is polysyllabic, abounds in vowels, and its pronunciation is harsh and far from being harmonious. After my arrival when I heard the natives speaking, it appeared to me that the sounds formed in the throat came out through the nose, and that the tongue—the usual instrument for producing distinct sounds—had very limited functions in their language. Young boys, as speaking generally more distinctly than grown-up persons, were my teachers at first, until my ear had been practised to the hearing of such confused sounds." "Notes on the Nicobars," by Rev. J. M. Chopard. "Journ. Ind. Arch.," 1846, p. 272.

[2] *Vide*, App. A.

[3] A plated cruet-stand and a silver cup were eagerly coveted, and I used to mark off imaginary portions day by day, taking care that the completion of my first Vocabulary should coincide with the winning of the prize.

[4] *Vide* "Journ. R. G. S.," January, 1887. "The Islands of the New Britain Group," H. H. Romilly.

were, of stepping stones of volcanic origin, connecting the province of Burma with the large island of Sumatra.

Regarding the origin of the group, many theories, it is almost needless to say, have been advanced. Mr. S. Kurz[1] considered that they "are, in all probability, remnants of a mountain range that connected Sumatra . . . . and Arakan," while Mr. A. O. Hume,[2] although favouring the same theory, admits that a consideration of the fauna is not in support thereof, "since not only are almost all the most characteristic species of the Arakan Hills as we now find them absent from these islands, but these latter exhibit a great number of distinct and peculiar forms constituting where the ornis is concerned, if we except the cosmopolite waders and swimmers, considerably more than one-third of the whole number known"; by others, again, it has been argued that evidence is afforded by the flora and fauna that the Nicobars were, at some remote period, connected with Sumatra and the Malayan Peninsula, and that the Andamans at the same time being connected with Burma, the greater part of the entire eastern section of the Bay of Bengal was almost entirely landlocked, the Ten-degree channel and the Straits of Malacca forming the only outlets.

But as none of the above theories can be said to meet satisfactorily all the difficulties which the matter at issue presents, we can only hope that ere long more exact geological or other reliable data will be forthcoming, by the aid of which light will be thrown on the vexed question of the past connection of these islands with the neighbouring continents.

The Nicobar Archipelago comprises twelve inhabited and seven uninhabited islands, viz.:—

| | Square miles. | | Square miles. |
|---|---|---|---|
| Car Nicobar .. .. | 49·02 | [3]Meröe .. .. .. | 0·2 |
| [3]Batti Malv. .. .. | 0·8 | [3]Trak, [3]Treis .. .. .. | 0·2 |
| Chowra .. .. .. | 2·8 | [3]Menchal .. .. .. | 0·5 |
| [3]Tillangchong .. .. | 6·5 | Pulo Milo, Little Nicobar .. .. | 57·9 |
| Teressa .. .. .. | 34·0 | [3]Cabra, Condul, Great Nicobar .. .. | 333·9 |
| Bompoka .. .. | 3·8 | | |
| Camorta .. .. | 57·91 | | |
| Trinkut .. .. .. | 6·40 | | |
| Nancowry .. .. | 19·32 | | |
| Katchal .. .. .. | 61·7 | | |

It will thus be seen that the aggregate area of the group is about 635 square miles, or little more than one-fourth of that of the Andamans.

[1] *Vide* "Sketch of the Vegetation of the Nicobar Islands," by S. Kurz.
[2] *Vide* "Stray Feathers," Vol. II, p. 30.
[3] These are uninhabited.

For convenience of reference, the Nicobars are in the following pages divided into three groups, viz.: the Northern, Central, and Southern; but it should be explained that this must not be taken arbitrarily, for while *geologically* (as was pointed out by the late Mr. S. Kurz)[1] there are only two divisions characterising respectively the northern and southern portion of the group, we find, *philologically*, no fewer than six sub-divisions or dialects spoken within the same area. (*See* map, Pl. XVIII).

One of the earliest authentic allusions[2] we have to the Nicobars is—as with the Andamans—in Ptolemy's map of these regions, in which are represented a group of islands bearing the following inscription:—"*Satyorum insulæ tres quarum incolæ caudus ut sunt Satyorum habere dicentur.*" Ctesias may, it is true, be also cited as giving a similar account of the inhabitants, and the foundation of the myth may be traced, as will be seen later, to the garment[3] affected by the males in these as in many other tribes of the Malayan Archipelago.

The Arabian navigators of the ninth century also give us accounts of visits paid to the group, and Marco Polo, at a later date, makes mention of them in his wanderings,[4] but in none of the various documents to which we have access is there to be found a probable derivation of the name "Nicobar" as at present used to denote these isles, though—as mentioned by Colonel Yule—the nearest approach to the old nomenclature is now-a-

[1] "Geologically the Nicobars are divisible into two groups, the southern and the northern. The former comprises Great and Little Nicobar, with the adjacent islets, and Katchal. It is characterised by the predominance of calcareous sandstones (brown-coal formation). The northern group includes Nancowry, Kamorta, Trinkut, Teressa, Tillangchong, Car Nicobar, and the small islands near them. [This refers to Bompoka, Chowra, and Batti Malv.] Alluvial deposits and plutonic rocks are the conspicuous features here. This geological division admirably coincides with the general botanical appearance of the respective islands. While the islands of the southern group are forest-clad from the bottom to the top, the forests on the northern group are restricted to the plutonic rocks and to the slopes and dells of the older alluvium, while the hilly plateaux and ridges are covered with park-like grass heaths." (*Vide* "Sketch of the Vegetation of the Nicobar Islands."—S. Kurz.)

[2] The best known narratives and descriptions of the Nicobars and their inhabitants are those of Pères Faure and Taillandier (1711); Rev. J. G. Haensel (1787); Surgeon N. Fontana (1778); Lieut. R. H. Colebrooke (1790); G. Hamilton (1801); Rev. D. Rosen (1834); Rev. J. M. Chopard (1844); H. Busch (1845); Rev. P. Barbe (1846); Dr. H. Rink (1846); Novara Expedition (1858); Mr. W. L. Distant (1868); A. O. Hume (1873); Dr. V. Ball (1873); F. de Röepstorff (1874–83).

[3] *Vide post* "Clothing."

[4] Col. Yule in his "Marco Polo," Vol. II, p. 249, writes:—"They are perhaps the *Nalo-kilo-chéu* (*Narikela-dvipa*), or Coconut islands, of which Hwen Thsang speaks as existing some thousand *li* to the south of Ceylon . . . . The islands are also believed to be the *Lanja bálús* or *Lankha bálús* of the old Arab navigators."

days to be found in the name of one of the islands which is known as Nancowry.[1]

The first mention I have found of the name "Nicobar"[2] in its present form is in an old book of letters dated 1711, but published in Toulouse in 1810, the author, Père Faure, writes as follows:—"*La principale de ces îles s'appelle Nicobar et elle donne son nom à toutes les autres quoiqu'elles aient outre cela un nom particulier.*"

A possible derivation may be suggested by the following extract from a paper by A. de Candolle (1885), on "The Origin of Cultivated Plants." "The presence of the coconut in Asia three or four thousand years ago is proved by several Sanskrit names . . . . The Malays have a name widely diffused in the Archipelago, *kalapa, klapa, klopo.* At Sumatra and Nicobar we find the name *njior, nieor,* in the Philippines *niog,* at Bali, *nioh, njo* . . . ." While the Nicobars have long been famed for the excellence of their coconuts, the only words which bear any resemblance to the forms above given are "*ngoât*" a ripe nut, and "*ñi-nàu,*" a half-ripe nut.

On questionable authority these islands have been described as "formerly known by the Malays as the Sambillangs or Nine Islands, and the Admiralty chart gives Sambelong as the name of the island of Great Nicobar. It is true that at the present day native traders employ this name, but only in connection with the Southern Group, but there are, to my mind, obvious reasons against the probability of the name having ever been used to designate the entire Nicobar Archipelago. The fact of there being nine (Malay *Sambilan*) islands and islets in the Southern Group may, perhaps, give a clue to the origin of the term: failing this, it may not be considered far-fetched to suggest that the name is derived from Sham Loong—*Sham* or *shom,* signifying natives or people, and *Loong* being the local name for Great Nicobar. From a careful study of the language it appears that in the dialect of the Central Group only is there any word which bears some resemblance in sound[3] to "Nicobar," *i.e.,* "*da-nähkaba,*" which is the name of one of the "moons" in the dry season; whether the use of this word could have been understood by travellers to refer to the name of the island in lieu of a month is of course open to question, but I mention it in passing.[4]

[1] In Col. Yule's "Hobson-Jobson," p. 478, various renderings of the name are found.

[2] The name is unknown to the aborigines, who call the islands "*Mattai,*" which signifies equally "land," "country," "world," "island," and even "village."

[3] Hunter's "Gazetteer of India," Vol. I, p. 195.

[4] In his "Jungle Life in India," (*v.* p. 207), Prof. V. Ball ventures the fol-

The physical aspect of the Nicobars leaves nothing to be desired to enhance its loveliness, and far surpasses that of the Andamans; the graceful and lofty Arecas, which are here abundant, are entirely lacking there, and whereas the Andaman jungles present almost one continuous mass of nearly the same colouring the Nicobar forests exhibit the most varied and luxuriant forms of vegetation. Tree ferns, which are not found at the Andamans, grow in wild profusion along the river banks of Great Nicobar, where they frequently attain a height of forty to forty-five feet.

The waters which lave these shores possess that extreme clearness and depth of colouring which is generally observable in the region of extensive coral reefs.

Of the beauty of the coral beds themselves language conveys no adequate idea, yet in order to aid the reader's imagination I would fain quote the graphic description given by Prof. V. Ball, F.R.S., after a visit to these islands. "There were corals, which, in their living state, are of many shades of fawn, buff, pink, and blue, while some were tipped with a magenta-like bloom. Sponges which looked as hard as stone spread over wide areas, while sprays of coralline added their graceful forms to the picture. Through the vistas so formed golden-banded and metallic-blue fish meandered, while on the patches of sand here and there Holothurias and various mollusca and crustaceans might be seen slowly crawling."

There are several convenient harbours and many good anchorages at the Nicobars; of the former, the best known are Nancowry and Ganges Harbours, and Campbell and Sawi Bays, the last of which serves, however, only at such seasons of the year when there is no risk of northerly gales.

In some of the larger islands there are navigable channels, and at Great Nicobar rivers which would prove of inestimable value in developing the internal resources of the country.

Several of the Nicobar Islands, especially of the Southern Group, are covered with hills ranging from 600 to 2,000 feet in height,[1] and these—with the exception of Teressa and Bompoka—are clothed from the summit to the water's edge, and particularly near the sea level, with lofty and dense jungle. The northern and central islands are conspicuous for the extensive grass heaths

lowing suggestion in reference to this subject:—"Among the Garos the word '*Nakoba*' is used to denote a free man, and since the country occupied by the Garos extends nearly to Cape Negrais in Arakan, a connection between them and the Nicobarese would seem to be a not unnatural probability."

[1] Viz.:—"Great Nicobar, 2,105 feet and 1,751 feet; Little Nicobar, 1,428 feet and 1,420 feet; Tillangchong, 1,058 feet; Teressa, 897 feet; Katchal, 835 feet; Camorta, 735 feet; and Bompoka, 634 feet.

which cover most of the high land, and these, though pleasing when viewed from a distance, are invariably found in connection with the most sterile soil, consisting chiefly of magnesium and polycistina clay.[1]

Though teak, for which Burma is famous, and padouk, for which that country as well as the Andamans are noted, are absent from the Nicobar forests there are found even in the northern and central islands a variety of useful woods, while in the southern portion of the group timber of great value flourishes, from which a very profitable export trade will possibly hereafter be developed.

I have no doubt that if these islands were to be colonised by an agricultural race such as the Chinese a vast change would soon take place in their condition and commercial position, for the value of the present coconut trade, though by no means inconsiderable,[2] would rapidly sink into insignificance in view of the wealth that might be realised from these rich timber and cane forests as well as from the cultivation of the fertile and hitherto neglected soil of the southern islands[3] the area of which consists of about 390 square miles, or nearly two-thirds of that of the entire Archipelago. It seems merely a question of time for the promising character of these rich lands to be recognised and advantage taken of the opening they offer to the energetic colonist.[4]

The chief drawback to residence at the Nicobars is the malarial fever which prevails more or less at all seasons,[5]

[1] It has been suggested that these grass covered areas are the result of artificial clearing by some of those who formerly settled in the islands. Any one who reflects upon it cannot fail to recognise the existence of some innate cause which determines this peculiarity. An examination of the sources from which the soil is derived reveals the fact that they consist of magnesian clay rocks, which invariably yield a poor soil.—V. Ball, F.R.S., "Jungle Life in India," p. 186.

[2] The estimated annual export in recent years amounts to about five million nuts—valued at 50,000 to 70,000 Rs.—and the local consumption is believed to aggregate about double that quantity.

[3] In the southern islands of the group the rocks are similar to those of the Andamans, . . . . . and hence the forests there as in the Andamans are not broken by bare spaces."—*Vide* "Jungle Life in India," p. 215.

[4] In his brief reference to the island of Great Nicobar, Père Faure (1711) wrote :—"On y trouve de l'ambre et de l'étain." Amber proves to be ambergris, and tin has yet to be re-discovered; none of the natives are aware of its existence, or indeed of any mineral deposits. Judging, however, from the rich tin mines in the neighbouring island of Sumatra and at Perak, there is ground for hope that on this point the old writer's statement may some day be proved correct.

[5] The variation of temperature throughout the year is even less than at the Andamans : the maximum registered in the shade is between 93° and 94° and the minimum 73° Fahr., and the average mean throughout the year 82° and 83°. The maximum reading of the barometer 30·163 and minimum 29·708. The mean range being about ·238. With regard to the rainfall the registers show that the annual average amount corresponds with that at Port Blair (Andamans). There

especially in the vicinity of Nancowry Harbour, and which has proved peculiarly fatal to Europeans and other aliens, though the aborigines themselves are by no means free from its ravages. This evil is doubtless to be traced to the presence of numerous brackish-water swamps, to shallow estuaries, which are partially uncovered at low water, to exposed coral reefs, and to the extensive muddy foreshores that abound in various localities, the foul exhalations from which are sufficient to account for the insalubrity of the islands.[1] The comparative immunity enjoyed by the residents in the present British settlement—although still located in Nancowry Harbour—is, of course, due to the adoption of certain sanitary measures which were beyond the reach of the earlier colonists, who, moreover, did not possess the advantage of a sanitarium within easy access such as is now found at the Andamans; they were likewise ignorant of the benefits to be derived from the use of quinine and other modern prophylactics and were frequently enfeebled through lack of suitable nourishment, and thus were reduced to a condition in which they readily fell victims to the malarial poison.

The improvement which has taken place in late years in the sanitation of the Government station is attributable primarily, it would seem, to the extensive removal of the coral reefs, which surround the promontory on which the colony has been planted, and secondarily to the partial reclamation of the fetid muddy foreshore. No doubt if more labour were available a further considerable improvement might be effected by reclaiming a vast

can be little doubt that the rainfall in the southern group is considerably greater than it is either in the central or northern islands. The rains usually commence early in May and rarely cease before the end of December. The duration of the south-west monsoon may be reckoned from the beginning of May till the middle of October, from which time the winds are variable till January when they are usually from the north-east for about four months. For particulars regarding the rainfall throughout the year the reader is referred to Appendix C, which extends over a period of fifteen years.

[1] "Mr. Leisk who has lived for years in the Cocos Islands, and who is mentioned by Darwin as affording him much information, tells me that when the living coral in the sides of the Lagoon was exposed to the atmosphere by the force of a peculiarly strong trade wind driving back the sea, and rain having fallen at that time, it immediately died and blackened, and gave forth such a stench as to be intolerable, while the fish that were in the Lagoon rose dead to the surface, poisoned by the decomposing polyps. The effect of rain on exposed coral reefs I have seen again and again, and even the natives have noticed that after a shower of rain a coral reef always emits a greater stench. Besides this decomposing living coral, myriads of animals are to be noticed of the class of zoophytes, soft sponges, echinæ of various shapes and sizes, some even gigantic, the length between each angle of the pentagon in one kind being near eight inches, as I have measured, all are incessantly in condition of being produced and dying, and from this decomposing matter of half a square mile in extent I say you have the malaria produced which generates the fever endemic on this part of Blákáng Mátí."—*Vide* "On Coral Reefs as a cause of the Fever," by R. Little, Esq., Surg., "Journ. Indian Archipelago," 1848, p. 586.

swamp which exists in the immediate vicinity of the settlement.

With regard to the numerical strength of the aboriginal population, from a census taken in 1884 it would seem that at Car Nicobar,—which is the principal island of the group, and contains probably fully half the entire population,—a decided increase is taking place; while at Chowra, Teressa, and Bompoka, judging from the number of children to be met with, a like result obtains; but in the central and also in the southern portions of the group the strikingly small ratio of the juvenile element denotes a corresponding diminution of inhabitants. A more just estimate can be formed by the following table of the residents I found at the various villages in 1886:—

| | Men. | Women. | Male Children. | Female Children. | Total. |
|---|---|---|---|---|---|
| Great Nicobar .. | 67 | 51 | 23 | 15 | 156 |
| Little Nicobar .. | 35 | 34 | 9 | 6 | 84 |
| Condul .. .. | 19 | 12 | 7 | 4 | 42 |
| Milu .. .. | 3 | 3 | .. | .. | 6 |
| Camorta .. .. | 162 | 152 | 66 | 60 | 440 |
| Nancowry .. .. | 91 | 88 | 23 | 19 | 221 |
| Trinkut .. .. | 38 | 39 | 12 | 5 | 94 |
| Katchal .. .. | 114 | 103 | 47 | 50 | 314 |
| Teressa .. .. | 121 | 119 | 172 | 151 | 563 |
| Bompoka .. .. | 18 | 20 | 27 | 26 | 91 |
| Chowra .. .. | .. | .. | .. | .. | 700 |
| Car Nicobar .. | .. | .. | .. | .. | 3,500 |

Writing in 1844, the Rev. J. M. Chopard, who passed two years at Teressa, estimated the population of the entire group as about 8,000, and stated that the opinion of the natives was significant of the gradual approaching extinction of the race; contrary to the universal experience of modern travellers he feared that, should "Christian civilisation not come to the help of these wretched savages, the time is probably not distant when they will have disappeared entirely." In his estimate, however, he allows 2,000 as the probable number of the inhabitants of Car Nicobar, and 600 as that of Teressa, whereas, according to the census given above, the population of the former island was found to be about 3,500, and that of the latter about 560, or nearly half the total number of inhabitants in the other islands of the group. These discrepancies may partly be explained by the

statement[1] made by some of the oldest residents in the Central Group, who affirm that during the past forty or fifty years they have been visited with epidemics of small-pox and dysentery introduced among them by traders from the Straits and Burma, which have occasioned a terrible increase in the mortality.

The savage character attributed to the Nicobarese for many centuries explains, without need of further comment, the long neglect in attempting the colonisation of these islands, and a few words will suffice to record the ineffectual endeavours which have from time to time been made in this direction. Omitting Koeping, who, in 1647, made a flying visit to the archipelago, and repeated the fanciful story already current, that they were inhabited by men with tails, we have first to notice the mission extending over two years (1711–13) conducted by two Jesuit priests in the southern island of the group, both of whom are supposed to have suffered a violent death at Nancowry. The next settlers were Danes (1754–6), who at first took up quarters on Great Nicobar, but subsequently moved to Nancowry,[2] where for a brief space they occupied the site of our present Government settlement. Twelve years later (1768) some Moravian missionaries settled on the opposite site of the same harbour, where they and others who succeeded them laboured for nineteen years, with the discouraging result that, while not one native was converted, only one out of the twenty-five men who devoted themselves to the work survived the malarious effects of the climate, and he, too, after a residence of seven years was compelled to leave, and never completely regained his health.

On the abandonment of the mission, and with a view to asserting a claim to the islands, the Danes maintained a petty settlement on the harbour for the next twenty years (1807), when they were ousted by the British, with whom their country was then at war, but in 1814 the islands were restored to Denmark and nominally occupied till 1831, when a third mission was undertaken under Pastor Rosen with no better results than heretofore, and it too was abandoned in 1837. Nine years later another futile attempt was made by the Danes to colonise

[1] Some support to this statement is afforded by the fact that several old village sites are no longer occupied, and all are very sparsely inhabited, a few only numbering 40 inhabitants. Further confirmation is found in the statement that in 1839 40 men (presumably Europeans) of the whaling vessel "Pilot" were attacked and overpowered, no fewer than 35 of their number being killed by the natives on the north-eastern side of Camorta, whom they had provoked by interfering with their women. Such an occurrence argues a condition of natives in respect to numbers far different from that to be found at the present day, except at such thickly populated islands as Chowra and Car Nicobar.

[2] The site occupied by the Government Settlement in Nancowry Harbour has long been known to the Nicobarese as Kinlâha. This name is said to have been given it by the former Danish occupants.

the islands, but again after a two years' trial, it was relinquished and the settlement broken up. The group, however, still nominally belonged to Denmark until formally ceded by her in 1869, in accordance with the desire expressed by the British Government to take over the islands for the purpose of establishing a settlement there for the protection of trading and other vessels, by the suppression of the piratical acts by which the Nicobarese had for years past been gaining for themselves an evil notoriety.

The establishment of our colony has completely attained its primary objects, and has also been the means of attracting a regular and growing trade, and of enlightening the natives a little as to the benefits and resources of civilisation; and though one is compelled to regret the introduction of some of the evils which seem inseparably connected with advance in civilisation, yet it cannot be asserted that their contact with Europeans during the past nineteen years has had any prejudicial effect, either morally or physically, upon the race.

In studying the aborigines of the Andamans and those of the Nicobar Archipelago, the most casual observer could hardly fail to be struck with the wide distinctions which exist, not only in their language and physical characteristics, but also in their culture and customs. While the Andamanese, in spite of their many excellent qualities, must be regarded as one of the most degraded and barbarous races in existence, the Nicobarese, especially of the northern islands, prove themselves worthy to be ranked almost on terms of equality with their kinsmen inhabiting the Malayan Peninsula, and evidence is not wanting to show that they are capable of acquiring and *surviving* a higher degree of civilisation than that which they have as yet attained.

Before considering the affinities of the Nicobarese with existing races in neighbouring lands it will be well to explain that the inhabitants of these islands are divided into two groups, viz., the (so-called by way of distinction) coast people, who are found on all the twelve inhabited islands; and the inland tribe, known as Shom Peṅ, who are confined to the interior of the one large island called Great Nicobar. The Shom Peṅ have been—and I believe with good reason—accepted as the pristine indigenes, and their remote origin and purity of breed is apparently beyond question, while the various sections of the coast tribe, although differing from each other according to external influences and other circumstances, are without doubt descended from a mongrel Malay stock, the crosses being probably in the majority of cases with Burmese, and occasionally with natives of the opposite coast of Siam, and perchance also in remote times with such of

the Shom Peṅ as may have settled in their midst;[1] the fact that the Shom Peṅ present Mongolian affinities would thus to some extent account for the frequent occurrence of the oblique eye in a more or less marked degree throughout the group.

As mentioned in a previous paper read before the Institute in December, 1885, the inference which I have ventured to draw from all the information and facts which have come to my knowledge is, that the circumstance of the presence in modern times of the Shom Peṅ in one island only of the group is probably due to the extermination of those of the tribe who held aloof or remained hostile at the other islands, which from their small size and extensive grass heaths, would afford scant shelter or sustenance to fugitives.[2] It may also be that those who chose to cast in their lot with the invaders were spared, a supposition which is seemingly confirmed by the slight measure of kinship which is found to exist at the present day between the sections in the southernmost part of the group.

The information obtained in the course of at least two years' subsequent research among the Shom Peṅ, while confirming the statements made in the paper already referred to, has added little matter of fresh interest to be communicated at this time; a description will there be found of their general appearance and mode of dress, of their huts and sack-like cooking vessels of bark, and of the neatly made wooden spears (*henyūan*)[3] which are their sole weapons of offence as well as of defence. The abandonment of their encampments by the Shom Peṅ appears to be invariably a temporary measure, whether occasioned by a death or arranged merely for the purpose of procuring the fine cane, honey or other jungle produce which they barter with the coast people for such articles as they cannot otherwise obtain. Through this means intercourse between the two sections is gradually extending, and its influence is already observable in the superior construction of the huts by those members of the inland tribe who have been most thrown in contact with the coast people; two huts in particular I observed at Dakan-kat on the border of the Alexandra River (*Dâk-anaing*) and another

[1] Cases of connections with natives of India or other Asiatics appear extremely rare.

[2] While the negritos of the Andaman Islands, like the giant forest trees of their country when deprived of the shelter of the surrounding jungle, invariably succumb from the effects of exposure in our clearing, there is no reason to suppose that the same fate would overtake the Shom Peṅ if similarly circumstanced, for these although accustomed to live in small clearings surrounded by jungle are apparently sufficiently robust to withstand any harmful results from such a change of life and surroundings.

[3] These are made of Areca wood, and the head is pointed and jagged in such a way as to serve the purpose of barbs.

about two miles further inland, both of which evidenced in every part a neatness and finish which is entirely absent from the rude dwellings of most of the villages belonging to this tribe.

As some writers have gone so far as to question the existence of any affinity between the Nicobarese and the Indo-Chinese family it seems desirable to point out certain facts and ethnic characters, which, taken into consideration with the *primâ facie* evidence afforded by the general physical resemblance of the inhabitants of the various sections of the group to Malays or Burmese, or to what may be described as a cross between the two, leave no room for further doubt or hesitation on the subject.[1]

I. We find that the Nicobarese invariably erect their dwellings on piles, according to the custom which prevails from the frontiers of Tibet to the islands of the South Sea; while even among those natives of India who inhabit a marshy country this practice is never adopted.

II. The wilful staining of the teeth by the constant use of *pán*, without subsequent cleansing, is a habit they share with nearly all the races of Transgangetic India and the Archipelago.

III. The practice of perforating the ear-lobe and carrying wooden cylinders in the aperture for the purpose of ornament is a custom as universal among the Nicobarese as among any of the numerous tribes inhabiting the territories between and inclusive of Assam and Borneo.

IV. The artificial deformation of the head by flattening the occiput and forehead in infancy as practised by the natives of the central and southern coast tribes is described as one of the customs of certain tribes in Borneo and the Malayan Peninsula, while it has no place among the institutions of any of the various races of Hindustan.

V. The Nicobarese entertain the same general aversion to the use of milk as an article of diet which is found to be common to the various races of Indo-China and the Archipelago.

VI. The weakness or "brittleness" of the marriage tie and the facility of divorce have been described as a "feature common to the delineations of most of the tribes of Indo-China and the Indian Archipelago," and as presenting a striking contrast to the respect for the marriage bond shown by natives of India. Among the Nicobarese, as among the Dayaks of Borneo, many husbands have changed their wives three or more times before

[1] See Col. Yule's "Notes on Analogies of Manners between the Indo-Chinese Races and the Races of the Indian Archipelago," "Journ. Anthrop. Inst.," February, 1880; and "British Burma and its People," by Captain C. J. F. S. Forbes.

finding the partner with whom they are willing to pass the remainder of their days.

VII. The singular custom known as "couvade,"[1] or paternal lying-in, which is one of the institutions of the Dayak, and inferentially may be taken as existing among other Malay tribes which have as yet been but imperfectly described, is practised by all the communities at the Nicobars, including the inland tribe of Great Nicobar; it is by them regarded as a custom of remote antiquity and is called "*otô*" in the dialect of the Central Group.

VIII. Here too as among the Burmese and Malays affection towards infants and between lovers is betokened by sniffing the face and not by kissing with the lips.[2]

IX. In their social life and manners the Nicobarese differ from the generality of Asiatics and resemble the Burmese in being free from caste prejudice; in frankly yielding to the superiority of a European; in not fawning on persons of superior culture or position; in regarding discipline or any continued employment as most irksome; and—in the case of the more advanced natives of Car Nicobar—in being inquisitive and eager for information and readily fraternising with strangers. All seek the society of their fellows without restraint, and their social gatherings are enlivened by the presence of their wives, sisters, and sweethearts, with whom they mix on equal terms, like the Burmese. They, moreover, resemble the Burmese and differ from the natives of India in speaking without hesitation of their wives and families.[3]

X. The Nicobarese belief in spirits called *iwī* (or *sīya* as they are named at Car Nicobar), who cause sickness and death unless propitiated and scared away, corresponds with that of the Burmese in *nâts*. A like agreement between the Nicobarese and one or other of the various sections of the Burmese race is found in the practice of placing money either in the mouth or against the cheek of a corpse prior to burial in order that it may benefit the spirit on its arrival in Hades, and in the custom of making offerings at the funeral and at the subsequent memorial feasts in order to gratify and propitiate the departed spirit.

XI. Some minor analogies between the customs of the Nicobarese and Burmese might be pointed out, viz., while the Burman observes four days of worship in every month, *i.e.*, the eighth day of the waxing moon, full moon, the eighth day of the waning moon, and the last day of the last quarter, the native of

[1] See Yule's "Marco Polo," Vol. II, p. 52.

[2] Hence described by Wallace as the "Malay kiss."

[3] See Yule's "Embassy to Ava," p. 251, and Forbes' "British Burma," pp. 70 and 136.

Car Nicobar regards the first three of these days as a holiday (*anòila*) on which no work may be undertaken; the Burmese and Talein courting customs, as described by Forbes, accord with those in vogue at the Nicobars and more especially at Car Nicobar; the Burmese love of sport and amusement such as canoe-racing, feats of agility and strength, and skill in dancing, singing, etc., is equally shared by the Nicobarese among whom wrestling, skipping, and stick-fights take the place of the Burmese sparring and football matches; the eating of dogs' flesh, again, which is so generally associated with certain of the Indo-Chinese races, has been practised by the Nicobarese from remote times, though now-a-days the custom is confined almost entirely to the natives of the single island of Chowra.

XII. Although, in seeking to establish proofs of racial affinity, rather than of mere social contact, but little dependence can of itself be placed on the test afforded by linguistic affinities, it is not without interest to point out that the remarkable idiom of speech known to grammarians as numeral affixes or auxiliaries, which is so universally characteristic of the various Indo-Chinese languages, is a striking feature of all the dialects spoken in the Nicobar Islands, while sundry other peculiarities might be enumerated indicating such affinities to the Malay and Burmese languages as cannot but be regarded as possessing some significance when supported by the foregoing evidence, all of which tend to establish the kinship existing between the tribe under consideration and the Indo-Chinese family.

Finally, it may be further urged as arguing a bond of kindred between the Nicobarese and the Malayo-Burman races that while the former entertain no objection to marriages of their women with Malay, Burmese, or Chinese, only one or two instances can be discovered of unions between Nicobarese and Hindoos and others; indeed the very idea of such alliances is almost repugnant to them, as is borne out by the observation more than once made to me when discussing the subject with natives of Car Nicobar, "he 'nother kind man."

**Form and Size.**—In spite of a general resemblance between the inhabitants of the various islands of the group, certain distinguishing peculiarities are readily noted by the careful observer after a residence of any duration in their midst, and I have frequently tested the accuracy of my observations by naming correctly the respective localities to which individual members of a mixed party of Nicobarese belonged.

It is curious as one passes from the almost squalid hamlets of the South—whose few and slothful and apathetic inhabitants are scarcely to be roused by the rare event of a vessel arriving

in their waters—to note the gradual change in the habits and prosperity of the several communities as one island after another is passed in a northerly direction, till when Car Nicobar is at last reached comparatively densely populated villages are found, whose busy and energetic people have secured to themselves an annual export of two or three millions of coconuts besides the profits arising from the sale of pigs, poultry, fruit, and vegetables to the numerous vessels which touch here for trading purposes.

In the various statements[1] which have been published during the past hundred years or so regarding the Nicobarese, there is a more general agreement concerning their leading characteristics than is often the case with such accounts.

Mr. N. Fontana (1778) describes them as being "of a copper colour, with small eyes obliquely cut, with small flat noses, large mouths, thick lips and black teeth; well proportioned in the body, and rather short than tall, with large ears; . . . the women are of the same colour and very small in stature." Lieut. Colebrooke (1790) informs us that "they are in general robust and well-limbed, and in features resembling Malays, whom also they approximate in the matter of colour; he further tells us that the women are much inferior to the men in stature, though they are more active in all domestic matters." Mr. G. Hamilton (1801) writes much to the same effect, adding, however, a stricture on the extreme ugliness of the women.

In 1846, Père Barbe, an observant writer, remarked "that it is difficult to have an accurate notion concerning the origin of the Nicobarians. They have projecting cheek-bones, flat visages, flattened noses, scanty beards, straight black hair, and Chinese eyes. Their complexion is dark olive, they are corpulent, muscular, and well-made, but their legs are rather short in comparison with the trunk, the lower extremity being more developed than the upper one:" he adds that "they appear to hold some relation to the Malays," and expresses his belief that "they may belong to the same race of people who formerly lived on the seashore of Sumatra."

Dr. Rink, writing in the same year (1846), speaks of their "low stature, their powerful although coarse form of body, with broad feet, strong limbs, broad shoulders, short neck, their broad face, with flat nose, large mouth, and prominent jawbone, and finally the brown (passing somewhat into a copper-red, but at the same time very uniform) colour of their skin would incline one coming from the more civilized parts of India to believe that one had arrived at the territory of a new race of men, for in vain

[1] *Vide* list of writers, p. 45.

would he look here for the noble features, the expressive look, the slender and graceful stature, and the pleasant demeanour of the Hindoos . . . this may serve as an example of the gradual transition of the Mongolian race through the Indo-Chinese into the Malayan." Dr. Rink, elsewhere, speaking of the Nicobarese women, describes them as "of large stature and strong constitution." In general agreement with the last quoted writer are the comments made on this race some 23 years subsequently by Prof. V. Ball, F.R.S.

From careful measurements taken of 150 to 200 individuals of both sexes at the various islands I found that the average height of the males is 5 feet 3¾ inches, while that of the females is 5 feet, a result which disproves the statement of certain of the earlier authors whom I have quoted regarding the disproportion between the sexes.

It was also found by measurements taken of males that—with one exception—the *grande envergure*, or extreme span of the arms, extended at full length like a cross, exceeded considerably the height, sometimes to the extent of 5 inches, and never less than half or three-quarters of an inch, the average being about 3 inches in excess of the stature;[1] no such striking divergence in this respect was found among women; in one case there was a difference of 4 inches in the *envergure* over the height, and the average difference seems to be about 1½ inches.

The distance of the extremity of the middle finger in the ordinary vertical attitude from the upper border of the patella, the muscles of the thigh being flaccid, was found to range in males between 3 inches and 7⅛ inches, the average being 5¼ inches; while in the few women who were examined, and who were of medium stature, the average was much the same.

On comparing the distance of the middle finger above the upper border of the patella with the stature as 100 in each individual measurement, among the men the index 8½ will be found to represent the average distance.

In respect to the inland tribe of Great Nicobar (Shom Peń) the measurements which have been taken go to prove that they average about an inch less in height, and are less robust in physique, than the coast tribes; they commonly have protuberant bellies, and an anæmic complexion, which is doubtless due to the insanitary condition of their dwellings and encampments, and to their unwholesome diet.

As I have already stated, the strong Mongolian affinities of the Nicobarese is borne out repeatedly by similarities both in

[1] This relatively to stature = 1000 would be represented by the index 1047 which closely approximates the results obtained among Europeans (see Topinard's "Anthropology," p. 334).

their constitution and culture; in the central and southern islands—where alone the occiput is flattened—the Malay element is easily recognised, while in the northern portions of the Archipelago, especially at Car Nicobar, a Burmese strain is observable. (Pl. XX).

The chief characteristics of the race, as they strike me, may be summarised as follows: the forehead is well-formed, the eyes are usually more or less obliquely set, the nose is wide and flat and is only in a fewrare instances aquiline; the complexion of the majority of these natives is of a yellowish or reddish-brown tint, the cheekbones are prominent, and the features, though somewhat flat, are less markedly so than is commonly seen among the Malay races. Such appearance of prognathism as prevails in these communities, which may be considered as of unmixed origin, must be traced in part to the prolonged period of lactation, and subsequently to the habit of constantly sucking the green coconuts, as well as to the betel-chewing custom, which as mentioned in another place, produces a habit which has in time the effect of forcing forward the incisors of the upper and lower jaw till they protrude to an extent that is in many cases almost revolting. Judging from lads and children the lips are naturally of fair size and shape, though the mouth is commonly very large.[1] The ears are of medium size, but the lobes are almost invariably disfigured by the practice, which prevails also among the Burmese, of perforating them and inserting by way of ornament wooden or cane cylinders or even discs, measuring sometimes as much as an inch in diameter.

In spite of their general muscular development, there is lacking in the physique of the Nicobarese that grace of outline which is so pleasing to the eye; the inward curve of the waist is scarcely noticeable among them, while the sharp bend in the back (*vide* profile Pl. XX), in most instances further mars that harmony of proportion which is essential to the perfection of the human form.

The superior development of the lower limbs in these aborigines, as compared with the natives of India is often very striking, and is clearly attributable to the early and constant practice of climbing coconut trees, whereby the muscles of the thigh and calf are continually called into play. The feet and hands of these tribes are not abnormally large; the former are, however, inclined to be broad and flat, the heel very rarely projects, and then only to a very slight extent; if, however, it be contended

[1] It is very generally remarked by visitors that the children are often extremely nice-looking, but as soon as they commence the habit of betel-chewing all traces of beauty disappear; the age at which they usually commence betel-chewing is 8 or 9, though sometimes it is seen in little ones of 4 and 6.

that the feet should bear the same ratio to the height that 14 does to 100, the average length of the Nicobarese foot would appear to exceed the correct limit.

In eighteen instances out of thirty-five examined it was found that the second toe was longer than the big toe, in thirteen more they were both of the same length, while in the remaining three individuals the big toe was the longer. Again in sixteen persons out of twenty the third finger proved longer than the first, and in the rest both were of the same length.

In a large number of individuals examined at the various islands it was found that the space between the pupils of the eyes averaged $2\frac{3}{8}$ inches, a result somewhat in excess of the measurements of several Europeans who were similarly examined.

For convenience of reference the results of the measurements taken of 150 to 200 natives at the various islands are subjoined :—

*Height.*

| | Maximum. | Minimum. | Average. |
|---|---|---|---|
| | ft. in. | ft. in. | ft. in. |
| Men .. .. | 6 0* | 4 9 | 5 $3\frac{1}{4}$ |
| Women .. | 5 6 | 4 9 | 5 0 |

* Very exceptional, two only, both at Chowra, and both thin and of inferior physique; the majority are between 5 feet 3 inches and 5 feet 5 inches. Very few attain or exceed 5 feet 7 inches. These remarks apply equally to all the islands.

Height seated (of men) was found to average 2 feet $9\frac{1}{2}$ inches which is thus shown to be 2 feet $6\frac{1}{4}$ inches less than the average height; the height of the fourchette of the sternum above the ground, the individual being seated on the ground, with the trunk upright, and breathing quietly, was found to average :—

In men .. .. $22\frac{1}{4}$ inches.
In women .. $21\frac{1}{8}$ „

*Girth round Chest.*

| | Maximum. | Minimum. | Average. |
|---|---|---|---|
| | ins. | ins. | ins. |
| Men .. .. | $42\frac{1}{2}$¶ | 30 | $34\frac{1}{2}$ |

¶ This was very exceptional, the next greatest girth, 39 inches, was only found twice, and it is doubtful whether ten men of equal girth could be found in the entire group.

The circumference of the chest relative to the stature is thus shown to average 54·1, which closely corresponds to the ratio among Englishmen as quoted by Dr. Topinard (p. 404). The play of the chest, *i.e.*, the difference between the two circumferences taken during inspiration and expiration, was found in men to average 1¼ inches, and in no case did it exceed 2½ inches:—

*Weight.*

| | Maximum. | Minimum. | Average. |
|---|---|---|---|
| | lbs. | lbs. | lbs. |
| Men .. .. | 210* | 102 | 136 |
| Women .. | 158 | 90 | 118 |

* This too is exceptional, only two men have been observed over 200 lbs.; a few others noted weighed respectively 181, 170, 163 lbs.

*Girth of Waist.*

| | Maximum. | Minimum. | Average. |
|---|---|---|---|
| | lbs. | lbs. | lbs. |
| Men .. .. | 35 ¶ | 28 | 30½ |

¶ Unlike the Burmese, corpulency is not admired by these islanders.

*Thigh.*

| | Maximum. | Minimum. | Average. |
|---|---|---|---|
| | ins. | ins. | ins. |
| Men .. .. | 25½§ | 18 | 19½ |

§ This and one other of 24 inches were isolated cases.

*Calf of Leg.*

| | Maximum. | Minimum. | Average. |
|---|---|---|---|
| | ins. | ins. | ins. |
| Men .. .. | 17¾‖ | 12½ | 14¾ |

‖ Only one instance; many were found to measure between 15 and 16 inches.

The superior development of the Nicobarese in this respect as compared with natives of India is often very striking and is clearly attributable to the frequent exercise of the muscles of the calf in climbing coconut trees.

*The Biceps of Arm.*

| | Maximum. | Minimum. | Average. |
|---|---|---|---|
| | ins. | ins. | ins. |
| Men .. .. | 17¼† | 10½ | 12 |

† Isolated instance: in no other case did the measurement exceed 14½ inches.

Length of arm from shoulder to wrist (men), average, 21¼ inches.
" hand, (men) average, 6¾ inches.
" leg from hip to ankle (men) average, 34½ inches.
" foot (men), maximum 10½ inches, minimum 8½ inches, average 9½ inches.
" " (women), maximum 9½ inches, minimum 8 inches average 8¾ inches.

**Physical Powers and Senses.**—Writing in 1844, after spending two years at Teressa, the French missionary, Rev. J. M. Chopard, commented on the undoubted fine physical development of the Nicobarese, but I feel sure that his statement, that he has seen them "carrying without any trouble two hundred coconuts" must require correction, for this represents a load of nearly 5 cwt. From personal observations and after many enquiries on this subject I am assured that an able-bodied man's load is three scores of unhusked coconuts or four scores of almost entirely husked nuts,[1] in other words, from 160 to 180 lbs. weight in either case. The nuts are invariably slung in pairs across the two ends of a pole, care being taken to adjust exactly the balance of the load. One man is spoken of as having in his prime carried five scores of husked coconuts, but this is cited as an evidence of his exceptional powers. The loads borne by women average about one-third less than those of men (Pl. XXI).

It is considered a good load to carry twenty pairs of their coconut water vessels (*hishōya*, vide Appendix N, Item 33) each containing from 2 to 3¼ pints, or about 12½ gallons of water,

[1] These nuts are brought from distant plantations for feeding the live stock and their own consumption. A small portion of the husk sufficient to provide a strip for attachment to a second which has been similarly husked is all that is left on the shell, the load is thus considerably lightened and a greater number can be carried than would be possible were the nuts unhusked.

the average weight of the whole amounting probably to about 1 cwt.

Weights are never carried on the head, but are invariably slung on a stick or pole and borne over the shoulder. A woman may occasionally be seen carrying on her head for a few yards, from her hut to the jungle, a basket containing a light load of Pandanus drupes, but this is the only instance in which anything is borne on the head: as they are not in the habit of distressing themselves by taxing their powers of endurance, the distance that a man or woman will carry a maximum load without a rest rarely if ever exceeds a few hundred yards; in fact it would appear that though the physical powers of the average Nicobarese exceed those of the average Burman or Malay, there are many tasks performed by the latter from which the former would shrink as irksome and fatiguing.

The only occupations requiring endurance as well as skill, in which they may be regarded as adepts, are climbing coconut trees, and paddling long distances in their canoes, and it is evidently due to their frequent practice in these arts that so many of them possess well-developed frames and muscular limbs.

Their walking powers cannot be satisfactorily determined; a man would consider that he had performed a long walk if he had covered about 15 miles along a fairly smooth undulating path, especially if carrying a load not exceeding 30 lbs., and his average rate of speed for such a walk would under ordinary circumstances be less than 3 miles an hour. Only under very exceptional circumstances would a Nicobarese undertake a walk of over 20 miles, and he would certainly take a short rest after every few (5) miles. Through jungle paths or along a sandy and rocky coast they would never attempt any great distance; women rarely go far from their homes either by land or in a canoe.

As these people are unpractised in running it has not been surprising to find that their performances when competing in foot races at the occasional sports held in the Government settlement, have been below the average of Madras sepoys and Punjábí police, and this refers to flat races of 200 yards only; very few of them could run as far as a quarter of a mile at racing speed, even on a level road. In jumping (whether "high" or "long") their attempts are very poor, and they excel chiefly in "tugs-of-war" and "putting the shot" where their weight and muscles come into full play.

As shown in another section (*vide* Anatomy, etc.) their power of abstaining from food and drink without inconvenience, is, under any circumstances, very small, or at least is never allowed to be strained. Although in regard both to sight and sound they are inferior to the Andamanese, they are yet superior

to Europeans[1] in all matters in which these faculties have been exercised in their semi-savage state. On testing a party of young men with the test paper used in the army for recruiting purposes, I found that while all were well able to count the dots correctly at a distance of 19 yards, which is said to indicate "perfectly acute vision," some could still do so at 22 yards, but this was the extreme at which any degree of accuracy was obtained.[2]

Cases of blindness and of myopia[3] appear to be rare, and to be equally distributed throughout the group.

In order to ascertain their sensitiveness to touch, the points of a compass were simultaneously applied to different parts of the body, the result being that the minimum distance at which the two points ceased to be felt as one, was found to be from half-inch to 1 inch, certain parts of the body being more sensitive than others.

Their sense of smell is by no means defective. I have, however, never observed any special instance in this respect calling for remark. As in the case of the natives of New Ireland, mentioned by Mr. A. J. Duffield,[4] the smell of carbolic acid is particularly obnoxious to them; young men and women are very partial to scents; the former explain that they find its use a certain passport to the favour of their wives.[5]

It has often surprised me to observe how little the sense of taste among the Nicobarese appears to be affected by their constant habit of betel-chewing; they are always able to distinguish any particular flavour in food or drink, and to detect the fact when rum has been given them slightly diluted.

**Anatomy and Physiology.**—In a land of plenty such as theirs the occasion for testing their powers of abstinence from food and drink has probably rarely arisen, and they are so little accustomed to endure any privation, that, except immediately after a meal, when they indulge in a cigarette, there is hardly an hour in the day when they are not taking quids of betel; between meals also they often dispose of the contents of two or more green coconuts or some toddy, and will accept any

[1] From the statements of the coast people, it would seem that the Shom Peñ excel them in these respects as well as in all jungle craft.

[2] It would appear, however, that there is nothing remarkable in this, as I was able to compete successfully with all but one man at the maximum distance.

[3] I once saw an old woman at Trinkut wearing spectacles while engaged in making an ornamental skirt for an approaching festival.

[4] *Vide* "Journ. Anthrop. Inst.," August, 1885.

[5] The scented leaves of a certain creeper (*tenyám*) are sometimes brought home by thoughtful swains on their return from the jungles in order to gratify their sweethearts and wives.

food or liquor which may chance to be offered to them at a friend's hut. When away from home on hunting or fishing expeditions and not ready to return, they will frequently eat raw certain varieties of fish which they may have caught; if no food is obtainable, they bind a cord tightly round the waist, by way of lessening the pangs of hunger. Before starting for a part of the jungle at a distance from any coconut plantation for a few hours' work,[1] they will invariably provide themselves with the necessary materials for betel-chewing, and, if possible, take also a few limes, in order that they may refresh themselves with the juice in water which they will collect and drink out of a large leaf or Areca spathe.

Consequent on the very general practice of betel-chewing the mucous membrane of the mouth is usually so artificially stained that its natural colour is difficult to ascertain; judging from an examination of some lads and children with clean mouths, the membrane appears to be either unstained with pigment, or to be of a light rosy tint; no opportunity has yet occurred to enable me to form an opinion as to the colour of the muscles and fat.

The skin is naturally very smooth to the touch, the result probably of the frequent oiling to which it is subjected from infancy; among the old or middle-aged the skin covering the knee-caps and elbows is loose and wrinkled, but this is easily explained by the common eastern habit of squatting on the heels.

After active exercise they perspire freely: how far it may be peculiar to the Car Nicobarese, I am unable to say, but I have frequently noticed that in this tribe after any violent exertion beads of perspiration appear on the nose; in spite of careful observations among the natives of the other islands, I have never yet come across a like instance of this cause and effect.

In child-bearing it would seem that from the extreme rarity of fatal terminations or of slow recoveries, labour may be regarded as comparatively easy, though not so much so as among such barbarous races as the Bushmen, Kaffirs, and Canadian Indians; the women have abundance of milk, and the two youngest children may constantly be seen together at the breast.

From the fact that the Nicobarese usually rise late and frequently indulge in naps during the day it has been inferred that they can ill bear privation in respect of sleep; but this view must be modified when it is found that these habits are generally the

[1] In the N.E. monsoon the fruit of the *Amomum Fenzlii* (the leaves of which serve as their cigarette wrappers) is eaten on these jungle expeditions, and they then often assuage their thirst—especially in the southern group—by drinking the refreshing and abundant juice contained in the ground rattan (*Calamus rotang*).

result of the previous night having been spent in spearing fish or in dancing and singing at some festival; indeed, on these occasions it sometimes happens that many individuals will keep awake for forty-eight hours at a stretch.

In consequence of the equable nature of their climate the ability of the Nicobarese to endure cold cannot be judged; they are always careful to avoid direct exposure to a hot sun[1] on a sultry day, declaring that thereby they incur a risk of suffering from fever and severe headaches.

The following table furnishes the results of observations made on a party of Nicobarese men and boys in ordinary health while seated in the shade and before taking a meal.[2]

| Age. | Temperature under axilla.* | Rate per minute of | | Remarks. |
|---|---|---|---|---|
| | | Pulse. | Respiration. | |
| 30 | 98·4 | 72 | 18 | * The bulb being left undisturbed for six minutes. |
| 28 | 99 | 78 | 18 | |
| 25 | 98·6 | 68 | 16 | |
| 24 | 98·4 | 78 | 18 | |
| 20 | 98 | 78 | 19 | |
| 18 | 98·4 | 72 | 15 | |
| 18 | 98·4 | 78 | 17 | |
| 17 | 98·8 | 68 | 15 | |
| 17 | 97·2 | 61 | 17 | |
| 17 | 99 | 78 | 19 | |
| 17 | 97·8 | 72 | 15 | |
| 16 | 98·5 | 75 | 19 | |
| 16 | 98·2 | 72 | 19 | |
| 15 | 99 | 78 | 17 | |
| 14 | 98·8 | 72 | 17 | |

**Motions.**—The Nicobarese even from their earliest years are devoid of that natural grace of attitude and motion which seems almost a prerogative of youth, and except under some sudden excitement the most striking characteristic to a stranger would be the sluggish gait and slouched bearing of both old and young throughout the archipelago, even the Car Nicobarese are not exempt from this racial peculiarity, though far in advance of

[1] When photographing a group exposed to the sun, I have almost invariably been requested to do it as quickly as possible that they may suffer no ill effects from the sun: their appreciation of a pith hat is by no means entirely due to their mania for wearing European garments.

[2] The rates of pulse of 11 others who were tested were as follows:—62; 66; 68; 70; 78; 79; 80; 80; 82; 82; and 84.

their compatriots in the other islands both in energy and intelligence.[1]

When the head is in the usual position, a line drawn through the *meatus auditorius* horizontally, is found to pass slightly above the nostril, there seems to be little or no power of moving the ears or scalp, and but little play of feature; they are capable of shutting one eye without closing the other, and can extend one finger without opening the hand.

In walking the body is fairly balanced, the foot firmly planted, the heel being brought to the ground slightly before the rest of the foot, the arms generally hang limply at the side, with the palms of the hands turned inwards, and are swung while the body is in motion; there is an entire absence of spring or elasticity and the whole gait is stiff and ungainly.[2] Both in running and walking the toes are turned slightly outwards.[3]

The legs are rarely fully straightened when standing at ease nor is the body held erect but the whole weight is thrown on one foot, one hand grasps the other arm either across the abdomen or behind the back.

In pointing to any distant object, or place, the arm is generally stretched to its full length, and closing the other fingers with the knuckles uppermost, the direction in question is indicated with the fore-finger. In beckoning a person to approach the arm is held half bent and the fingers are waved inwards keeping the knuckles uppermost.[4]

Both men and women up to middle age are able without effort or practice to touch the ground with their finger-tips and even in many cases with the knuckles without bending the knees.

When climbing a slight pole or slender tree such as the *Areca catechu*, the Nicobarese bend themselves almost double, and walk up with toes turned outwards, like monkeys holding on firmly with both hands. The toes are used for holding or picking up objects, or in climbing ropes, and the great toe is to some extent opposable; in moving any heavy object such as a canoe these natives generally *pull*, and power is in most instances exerted *towards* the body; when two or more persons are engaged in

[1] An explanation once given me by an intelligent native to account for this tribal peculiarity was that it arises from the large consumption of Pandanus paste in which they indulge, and which he described as producing a plethoric habit of body.

[2] The attitude in swimming is described under that sectional heading, and the posture of women in accouchement will be given under "Medicine."

[3] The average length of a man's pace is 27—29, and that of a woman 25—26 inches.

[4] It has been noticed by others that "the Nicobarese being endowed with extraordinary lip development are wont at times to indicate place or direction by a marvellous protrusion of the lip."

the same task they appreciate the advantage of acting simultaneously to the accompaniment of the voice, this is especially the case in canoe racing, and in erecting the demon-scaring poles (*kanaiya*) or dragging a canoe over portage.

The only respect in which the Nicobarese are at all remarkable is in the agility with which they can climb coconut, and Areca, as well as ordinary branched trees; in this accomplishment the women are in a measure sharers at all the islands except Car Nicobar, though of late years owing probably to the influence of increased intercourse with foreigners at the Government Settlement in Nancowry Harbour this art is now rarely practised among females in the Central Group especially when strangers are present. Lads of no more than 8 years of age and less, may often be seen at Car Nicobar—where children are numerous and less petted—climbing for nuts as readily as their elders.

Among the men there are two modes of climbing the coconut trees, viz., that which is peculiar to Car Nicobar, and that which is adopted by the other islanders. The former in common with the latter use a fibre loop which is attached round the ankles of both feet, they also grasp the tree by means of a *dhá* which they hold at the two ends edge-inwards, this enables the climber to obtain a firm grip of the tree as he proceeds upwards by a succession of springs. Although the Car Nicobarese reckon themselves superior climbers to their southern neighbours, many would be found to dispute their claim, as the mode adopted by the latter strikes strangers as displaying more skill and grace besides presenting greater difficulty of attainment, for with them the hands appear scarcely to touch or grasp the trunk, and nearly all the work is evidently accomplished by means of the legs with which they spring upwards with marvellous facility after the manner of a frog. It is doubtless due to their constant practice of this art that they so commonly possess that stout muscular development of the calves and thighs noticed in another place. Women when climbing use a stout piece of coconut leaf for clasping the tree between the hands after the manner in which the *dhá* is employed by the Car Nicobarese men.

In spite however of their agility in the matter of climbing the Nicobarese appear to have somewhat stiff joints, and it would appear almost a matter of impossibility to teach one of them to perform successfully any feat in jumping or gymnastics. They have no tricks of sleight of hand.

**Abnormalities.**—No such deformities occur as sentopyga, and the excessive development of fat about the gluteal region which has been observed as a characteristic peculiarity among Andamanese women is not shared by their neighbours in these islands.

Four cases of hare-lip, and one of polydactylism only are known to the present inhabitants. No instance of albinism, erythrism, excessive hairiness of face or body, cleft palate, absence of teeth or supernumerary teeth have been observed or remarked by those who have been questioned on these points.

Such appearance of prognathism as is observable in certain individuals seems to be due to the prolonged sucking in lactation, to the constant habit of drinking coconut water from the nut, and to the peculiar habit (*vide Deformation*) of removing the shell lime from the thumb when chewing betel by scraping it off on the inner edges of the upper and lower incisors.

**Crosses.**—Connexions between the Nicobarese and other races have, at least in modern times, been of comparatively rare occurrence.[1] A few unions have taken place in recent years between the coast and inland tribes of Great Nicobar, but none of these appear as yet to have been fruitful.[2] One case is known of a union between a Nicobarese woman and an African —this occurred early in the century and must be referred to again—and another with a native of Madras, which took place at Teressa island, the issue being one son, who died on attaining manhood.

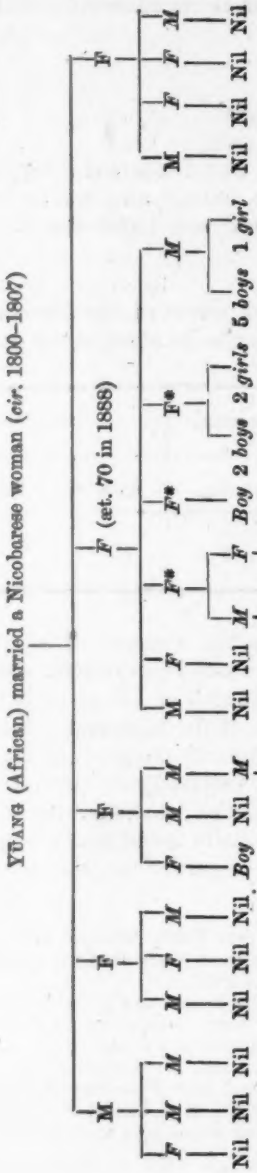
From lack of opportunity, cases of unions with Chinese have been very few and far between. With Burmese and Malays only have marriages been at all frequent, and even such cases have probably at no one time numbered more than 8 or 10, taking all the islands into account.

So far as can be judged from the examples known to us in the vicinity of the Government Settlement the result of these crossed unions does not indicate an increase of fruitfulness in the progeny; the children of the first cross appear to be quite as strong, viable, and long-lived as those of pure blood and in intelligence to be superior. No cases having occurred of unions between individuals of mixed parentage the relative degree of their fruitfulness with each other, and in their crosses with pure blood has not yet been ascertainable. The products of the first cross have been observed to resemble the female more than the male parent. Two return crosses would seem to suffice to restore apparent purity of blood. The characteristic marks of the cross which remain longest are the facial form, shape of the eyes and hair.

[1] So far as is known no cases of inverse crosses have occurred, though there is a rumour at Car Nicobar of a native of "that island having travelled to England and there found a wife, but as nothing more was heard of him he is believed to have died soon afterwards."

[2] It seems probable that, taken as a tribe, the *Shom Pen* will be found to afford an instance of ethnical purity as striking as that presented by the negritos of the Andamans.

The accompanying diagram shows the result of the union above referred to between an African and a Nicobarese woman, also of unions with Malays.


Yuang (African) married a Nicobarese woman (*cir.* 1800–1807)
F (æt. 70 in 1888)
M M M F F M F M M F F M F F M F F M
Nil Nil Nil Nil Nil Nil Nil Nil Nil Nil Nil Nil Nil Nil Nil Nil Nil Nil
2 *boys* 2 *girls* *boy* *girl* 2 *boys* 2 *girls*.
*Boy* 2 *boys* 2 *girls* 5 *boys* 1 *girl*

* With the exception of these three women, all of whom married Malays, the remaining adults married natives of their own or adjacent islands.

[Italics indicate those that are still alive.]

From this statement it will be seen that all the 5 children of the African—one of whom still survives at 70 years of age—became parents, 3 of them having 3 children each, one of them 4, and the remaining one 7 children or 19 in all, of whom 3 only are dead. No fewer than 13 of these have proved childless. Of the remaining 6,

2 have each 1 boy,
1 has 5 boys and 1 girl,
1 has 2 boys and 2 girls.
1 has 1 married son, and 1 married daughter.
(who, between them, have 3 sons and 3 daughters).
and 1 has 1 married son (who has 2 sons and 2 daughters).

Omitting the husbands and wives of the blood descendants of Yūang,[1] there are thus shown to be alive at the present day:—

| Married men. | | Married women. | | Children. | |
|---|---|---|---|---|---|
| Old. | Young. | Old. | Young. | Male. | Female. |
| 8 | 2 | 9 | 1 | 14 | 8 |

**Development and Decay.**—In the absence of statistics, and as far as can be judged by personal observations extending over seventeen years, the average length of life is higher rather than lower than it is among natives of the adjacent continents. This may be explained by the immunity enjoyed by the Nicobarese from the principal causes of mortality in those countries, viz., famine, cholera, typhoid, small-pox,[2] and measles.

The extreme limit of life actually noted is a little over seventy,[3] and probably eighty may be regarded as the maximum ever

[1] It is not clear to what African race *Yūang* belonged. One reads of "two Caffree slaves" being attached to the small guard that was maintained at Nancowry by the Danes between 1790 and 1807.

[2] As explained under Pathology, this disease, and probably cholera, have been introduced by ship traders on two or three occasions during the present century and a large number succumbed; neither disease is endemic.

[3] It fortunately happens that we are able to ascertain within a few years the ages of many of the old people in and near Nancowry Harbour through the residence in their midst from 1831–34, of a Danish Missionary (Pastor D. Rosen), and who is recollected by many whose ages at that time can be verified by sufficient evidence.

attained; of those who survive the sixtieth year it appears that fully two-thirds are women.[1]

Old persons are always allowed to reach their natural term of life, and are invariably treated with kindness and consideration by all connected with them. A few instances are known of four generations existing simultaneously in the same family, and in one the great-grandmother, though over seventy, is still an active woman, able to paddle herself across the harbour, and to perform the ordinary domestic duties pertaining to her sex.

The maximum of stature would seem to be reached about eighteen in the case of men, and in women a little earlier, while the general physical development is apparently not attained in either sex till three or four years later. Puberty is attained by the two sexes about the ages of fourteen and thirteen years respectively. The extremes of child-bearing age appear to be fifteen years and forty years; suckling is in most cases continued until the infant is two years old, unless the mother becomes pregnant.

**Pathology.**—At all the islands pectoral complaints, especially asthma and bronchitis, are very prevalent particularly about the time of the periodical changes of monsoon when malarial fevers also are more rife; owing probably to the superior physique and greater recuperative powers possessed by the Nicobarese it is found that they usually withstand the effects of these ailments better than the Hindu patients who come under treatment in our hospitals; it may nevertheless be fairly estimated that a higher percentage of deaths is directly traceable to diseases which are induced by sudden climatic variations than to any other cause.

The remarks made by M. de Quatrefages[2] on this point were forcibly recalled to my mind in the course of a conversation with one of the oldest and most intelligent of the residents in Nancowry; after informing me that in his youth the population of the Central group was far larger than it is at the present day[3] he proceeded to observe that in his opinion and that of others the marked increase of pectoral disorders, and also of cases of sterility and impotence is attributable to the lessened vitality which has resulted from the epidemics of small-pox and dysentery which have on three several occasions during the past 60 years decimated the villages.

[1] Mr. W. L. Distant, who visited Car Nicobar in 1868, remarked that he observed fewer old men than old women.

[2] *Vide* "The Human Species," p. 430.

[3] *Vide* "Development and Decay," p. 384, and "Reproduction," *post.*

M. Fontana writing nearly 100 years[1] ago stated that the Nicobarese were on the whole remarkably free from diseases of all kinds, but that small-pox of a mild type was occasionally met with in the islands; the natives on the other hand aver that only on two occasions have they been visited with the disease. The accounts are somewhat conflicting as to details but it would seem that either a few years before or a few years after the abandonment of Pastor Rosen's mission at Nancowry, small pox (*malī*) was introduced for the first time by a Malay trading vessel with the melancholy result that many hundreds of the aborigines fell victims.[2] Both in the Central and Southern group, and even as far north as Teressa it is declared that whole villages were depopulated.

The second epidemic occurred about 1856, and was also brought to their shores by a Malay or Burmese vessel which had among its passengers a Nicobarese who was returning from a visit to Penang or Burma where apparently he had contracted the dreaded malady; his indignant and unsympathetic compatriots put him to death for having exposed them once more to the dangers of infection! The precautions which were taken were successful in preventing the spread of the disease, and though the mortality was very great, it was confined entirely to the northern villages of Camorta.

The only other occasion on which the present inhabitants can recall a period of serious mortality was about 2 years after Mr. Rosen's departure, when it appears that the crew of an English barque, which had anchored near the mouth of Expedition Harbour, provoked the natives by molesting their women; watching an opportunity when most of the sailors were on shore a large party of Nicobarese attacked and disabled the vessel, and killed all the men who had remained on board. The sailors from the shore saw what was passing, and thinking discretion the better part of valour escaped at once in their boats to return in four days in another vessel with reinforcements and avenged the death of their comrades by burning down all the huts and coconut trees belonging to the inhabitants, who of course fled at their approach. During the absence of the sailors the natives had looted the barque of all the salt meat and other

[1] M. Fontana also asserted that the Nicobarese were entirely free from venereal complaints; such is not, however, the case at the present day, and though it is impossible to ascertain the date of the introduction of these scourges (probably through the agency of the Malay and Burmese traders), it is happily found that the proportion of sufferers in the various islands is very small, and the disease shows no tendency to spread in the terrible manner noticed among the negritos at the Andamans.

[2] A few pock-marked individuals are still to be met in or near Nancowry Harbour.

stores which they greedily devoured with the result that all who had partaken of the feast were stricken with a complaint which is said to have been characterised by a seizure resembling cholera; others speak of it as dysentery, but be that as it may, the majority of those attacked expired after a few hours of intense suffering. Although the epidemic was confined to the villages in Expedition Harbour, and those on the western shore of Nancowry Harbour, the mortality was very great.

The comparative immunity from fever enjoyed by the residents in certain of the islands of the group is evidently due to local causes, and the natives of those localities when visiting Nancowry Harbour succumb as readily to the malaria and suffer as severely as any aliens.

Apart from the miasma arising from the mangrove and other swamps throughout the Central group it must be borne in mind that the general insanitary condition of the Nicobarese villages enhances the danger of enteric fevers, etc., and it is no matter of surprise that even those who from infancy have been exposed to these influences are not inured to them; those among aliens who seem best able to withstand the miasmatic conditions are natives of the Burmese littoral, the climate of which is in many respects similar to that of the Nicobars.

The deadliness of the malaria in these islands will be more readily appreciated when it is known that even at the present day, when every attention is paid to sanitation, few aliens reside there for three months without experiencing its ill-effects more or less severely; it is not to be wondered at that of 25 Moravian missionaries who successively spent from a few days to 7 years in Nancowry Harbour, 13 fell victims to the climate before they could be relieved, and 11 others died soon after their return to Tranquebar; these men must have all lived under the same conditions as the natives, having no means for effecting any sanitary improvements in the site they had selected for occupation.

In spite of the malarial influences and the prevalence of beriberi in Sumatra and the Straits Settlements, this obscure disease has not yet been recognised in these islands, either among the aborigines or the alien population; this is probably due to the varied and wholesome dietary of the former and the strict sanitary measures which are enforced by Government.

Next to pectoral complaints and fever the disease which is undoubtedly most prevalent at the Nicobars is elephantiasis; the legs—and less frequently the arms—are first attacked, and the worst cases are marked by tuberosities on the feet and ankles from which there is a constant putrid discharge[1] with the excep-

[1] It is of some interest in this place to mention the rare occurrence of a European attacked with this disease, and the circumstances would seem to lead

tion of Chowra, where probably about 20 per cent. of the adults are afflicted with this disorder, the larger proportion of the sufferers are met with in the Central group where also the malarial influences are most rife. At Teressa and communities of the Southern islands, including the inland tribe, cases of elephantiasis are comparatively rare, while the natives of Car Nicobar are, and are said to have been always, entirely exempt. As a possible explanation of the immunity enjoyed by the Car Nicobarese in this respect it may be mentioned that they scarcely ever drink water from their wells, and never except in an almost boiling state, and in very small quantities when indisposed. Water indeed is seldom used at Car Nicobar save for bathing or cooking purposes, for the coconuts which flourish there so abundantly supply them at all times with a refreshing beverage as well as with food.

The anæmic condition of many of the natives in certain parts of the archipelago, notably at Chowra and Nancowry Harbour and its vicinity—where elephantiasis, splenic and liver complaints, tumours, swollen glands and such-like diseases are most common—is apparently traceable in great part to the impure drinking water[1] and in the Central group a further cause may be found in the situation of the villages which usually face an extensive foreshore and exposed coral reefs, while fresh water swamps and decaying vegetation and refuse matter skirt the rear of their habitations.

Cutaneous diseases are not uncommon, but seldom take a severe form, they would appear to be due in most instances to over indulgence in fish, and other heating dietary aggravated by the malarious climate[2], psoriasis (*heōh*), and pityriasis (*penlah*), are the two forms of this complaint most prevalent in these

to the inference that in the case of a European living under the same conditions as the natives themselves in a malarious district where this disease is endemic, no such length of time as is mentioned by De Quatrefages in the following extract need elapse to render him liable to suffer from this disorder.

In one of his letters written in 1812 (*i.e.*, 25 years after his departure) the Moravian missionary, J. G. Haensel, states, "After I had resided 5 years in the island, my legs began to inflame and swell to a prodigious size. A suppuration took place and till the discharge commenced I suffered excruciating pain."

[Extract from "The Human Species," by A. de Quatrefages, p. 426. "At Barbadoes. . . . . whites of *European origin* have as yet escaped. The elephantiasis of India is found in Ceylon. There again it only attacks natives, creoles, and individuals of mixed blood. Hindoos and Europeans, strangers in the island, are exempt from it. Scott . . . . states that only one case of this disease had been obeserved in a European white, but this individual had inhabited the island for 30 years; acclimatisation had been carried so far in his case as to cause him to lose his "*ethnological immunity.*"]

[1] Four cases of goitre (2 males and 2 females) have been observed which may not improbably be due to the impure water.

[2] This is not the opinion of the natives: both diseases affect permanently the colour of the skin. It should be added that leprosy is unknown in these islands.

parts, the former, which owing to the irritation characterising it is most disliked, is attributed by the natives to bathing in impure and stagnant water, and those so affected are required to perform their ablutions in the sea, in order that they may not contaminate the bathing-place of the rest of the community. The general immunity from diseases of this nature enjoyed by these islanders is attributable it would seem to their habit of constant bathing, and to the free use of coconut oil, which they apply freely to their bodies as well as to their hair.

Hunchback and lateral curvature of the spine, as might be expected are seldom seen, two cases only having come under my notice. Epilepsy also is almost unknown; no authentic instance of insanity occurring in their midst has come within the ken of the present generation, and only one or two tales of a legendary kind are to be found in support of the opinion that a few such cases have really occurred. How far their exemption is due to their avoidance of consanguineous marriages, or is to be accounted for on the principle that an organ which has little work to perform is less liable to become deranged than one which is worked under high pressure, is a question I must leave to the consideration of others.

As among other tribes similarly circumstanced the first 5 years of a child's life are regarded as the most critical, after that period it is reckoned that the probabilities are in favour of the little one reaching man's estate.

With the exception of those living in malarial districts who take little out-door exercise, or indulge freely in the use of *tari*, or who from any other cause possess enfeebled constitutions, the bodily recuperative power of the Nicobarese appears on the whole to exceed that of the average European; this opinion is based on observations made in cases of severe injuries caused by shark-bites, falls, cuts, etc.; in every instance the wounds healed so rapidly as to create surprise among aliens although the sufferers were invariably treated by their own medicine-men whose knowledge of the healing art is very limited.

The colour of deep cicatrices is whitish, while superficial ones are darker than the adjoining skin; it is common to see men severely scarred by injuries received when climbing trees, from stick-fights, or from accidents, incidental to the occupations of their daily life.

**Colour.**—In a description of the Nicobarese written in 1869 by a medical officer who had served some years in the Straits of Malacca it is stated that "they have clean healthy skins of different degrees of darkness, some as dark as a Malay and others of an olive colour." In order to ascertain which shades

of colour predominated among them I have examined a large number of individuals at all the islands with the aid of M. Broca's standard tables, the result of which is that I found the colour of the skin of the face and chest of the majority tested to register 30 or 43 more nearly than any of the other types, while the exceptions were noted as between 29 and 30, 30 and 43, and 28 and 35 respectively; a few cases were represented as 29 or 40, or between 40 and 45,[1] these differences were found to be almost equally marked at all the islands, except Teressa, Chowra, and among the Shom Peń, where the darker hue prevails, and cannot therefore be described as tribal characteristics.

The colouration of the skin pigment of the face, chest, back, arms, and thighs differs in a more or less marked degree in each individual, it being usual to find the two former of a distinctly lighter shade than the last three. I found, however, in one case that while the skin of the chest registered between 29 and 30, the neck 40, and the thighs and back between 29 and 43, the face was darkest of all, viz., between 28 and 35. In examining the inland tribe I found that the chief difference between them and the coast people is that the reddish-brown hue so frequently noticeable in the colouration of the skin in the latter is wanting in the former. The characteristic tint of the Shom Peń is a dull brown and in the majority of cases the skin has not the healthy appearance which distinguishes the coast people.

Headmen and their families do not differ from the rest of the community in respect to colour; their position is due to superior intelligence and not to the mere accident of birth.

According to their own statements the darker-skinned among them are better able to endure exposure to heat than the rest, and there seems to be ground for this opinion; the lighter coloured skins are, however, very generally preferred, and I have known a woman who was admiringly described as the "white widow," whose face proved nevertheless to be several shades darker than that of an ordinary Chinaman. The colour of the iris among these people I found in the majority of instances to be either 1 or 16 or between those numbers, a few came between 1 and 2 or 16 and 17 and in one I noticed a thin edging of a bluish tint.

Except at Car Nicobar, Chowra and Teressa where, from the common practice of having separate huts for cooking purposes the dwellings are comparatively free from smoke, frequent cases may be noticed in which the exposed portion of the sclerotics is discoloured and appears inflamed, while the upper

[1] In several cases of those who have a sallow, yellowish skin, it is found that the colour is not natural, but due to some skin disease, probably psoriasis, the result of over-indulgence in a fish diet.

and lower parts covered by the eyelids are found to be of the normal white colour.

It does not appear that the varieties in the colour of the eye correspond in any way to those of the skin and hair.[1]

**Odour.**—The peculiarities of odour which distinguish the various tribes and which are naturally more noticeable after taking violent exertion do not appear to be dependent on age or sex, and as the ordinary diet of the natives at the different islands differs in no essential particular, this distinction is probably due chiefly to the character, and more or less frequent use of the unguents they severally employ; the women, however, who pass most of their time at home cooking food, preparing Pandanus paste, and attending to the pigs and poultry emit an odour after engaging in these avocations which is sufficiently marked to distinguish them from the men.

Those among the Nicobarese who indulge in frequent bathing —the majority profess to bathe daily—and the few who take some pride in their personal appearance are not disagreeable at close quarters, as the only odour noticeable about them is due to their constant habit of betel-chewing, which, however, is not offensive to the olfactory nerves.

The natives themselves declare that they can distinguish a member of each of the six tribes of the Archipelago by his odour, but I have been unable to verify this statement; the peculiarity they affirm to be most readily detected in the natives of Chowra, whose presence is declared (and with justice) to be especially obnoxious, a fact which they attribute to the custom prevailing in that island of eating dogs.

**Teeth.**—In the majority of cases the teeth which are first cut are the lower incisors, but no notice is taken of exceptions to this rule; the first dentition is apparently completed about the second year. Even in those well advanced in life the teeth are remarkable for their regularity and freedom from caries, a fact traceable probably to the ample supply of appropriate nutritious food from earliest childhood, as well as to the universal habit of betel-chewing, and the healthy lives led by the people on the sea coast. But for the adverse influence of malaria among those living in localities where fever is endemic cases of dental caries would probably be almost unknown.

In the middle-aged it is noticeable that the molar tubercles are considerably worn down; as they are not accustomed to eat tough food this is evidently to be explained by their constant practice of chewing betel-nut and quicklime. The unpleasant

[1] One exceptional case should be cited of a man having hazel eyes—between Nos. 2 and 3 of Broca's paper—whose hair and skin in no way differed from the majority.

appearance of the mouth, which is caused by this habit, will be enlarged upon in another place (*vide Deformation*).

The canines are not prominent, and it is very rare to find—on the posterior molars—more than five tubercles, and these indeed are only to be observed in youths and those least addicted to betel-chewing; in all others the crowns of these teeth are so abraded as to present an even surface.

From about fifty years of age the teeth usually begin to loosen, and it is not at all unusual to see persons, who, having reached their sixtieth year, are found to possess but few teeth. This loosening may be attributed to the betel-chewing, which, though it seems to preserve the teeth from decay, yet has the effect of unduly exercising the muscles of the jaw, and thereby enlarging the teeth sockets.

**Hair.**—From infancy to the age of puberty[1] the colour of the hair darkens to a marked degree, although among children it is not uncommon in transmitted light to discover traces of yellowish-brown, the natural colour in the adult when examined in the same way proves to be of a dark rusty brown. In its usual oiled state[2] it looks almost jet black but is found to be really so only in comparatively rare instances. The Nicobarese hair retains its colour to a fairly advanced age, and several persons who are known to be over fifty show no signs of becoming grey; two or three individuals of the race are known who have completely white hair and these are believed to have attained the allotted span.

Speaking generally the Nicobarese may be described as having straight hair, though not a few have wavy, and others again are able to boast of natural ringlets; it is fairly abundant, and when allowed to grow, attains a length occasionally of some 20 inches, but seldom more; the roots spring uniformly over the scalp and not in tufts. Its chief characteristic appears to be its extreme toughness. Hair on the face is seldom seen, and then only growing scantily; such individuals are usually further distinguished from their fellows by having more or less hair on their chests, arms, and legs, and they not uncommonly become bald in middle life;[3] from repeated enquiries and careful observations there appears no reason to suppose that these persons are of a different origin to the rest of the tribe or that their peculiarity in this respect is due to mixed parentage. Except

[1] Specimen locks of hair have been cut from the heads of members of the coast and inland tribes, and forwarded to England for microscopic examination.

[2] The practice of oiling the hair is discontinued as soon as it commences to turn grey.

[3] Baldness among females appears to be extremely rare.

# Map of

# THE NICOBAR ISLANDS

illustrating by Colour the Distribution of Dialects

1887.

Batti Malv

Geog. Miles. 0 10 20 30 40

English Miles. 0 10 20 30 40

93°

94°

9°

8°

SOMBRERO CHANNEL

The green colour refers to the inland tribe called Shom Peñ *( Fr. Pain )*.

7°

7°

6°

6°

## LIST OF VILLAGES.

| CAB NICOBAR. | TERESSA. | CAMORTA. | KATCHAL. | NANCOWRY. | GREAT NICOBAR. |
|---|---|---|---|---|---|
| 1 *Mús* | 1 *Hcoin* | 1 *Hoe-mattal* | 1 *Kire-henpoan* | 1 *Oal-ta-heak* | 1 *Láfúl* |
| 2 *Lápáte* | 2 *Pahiála* | 2 *Ináka* | 2 *Hoin-ipoh* | 2 *Lanoanga* | 2 *Tenlá* |
| 3 *Malacca* | 3 *Keráwa* | 3 *Hentoin* | 3 *Oyau-tapáh* | 3 *Mattai-ta-hoe* | 3 *Bananga* |
| 4 *Kákana* | 4 *Lakzl.* | 4 *Domyau* | 4 *Olenchi* | 4 *Anowa* | 4 *Matalta-ánla* |
| 5 *Kemios* | 5 *Hinám* | 5 *Chang-hoa* | 5 *Shaké* | 5 *Hendáha* | 5 *Enlowa* |
| 6 *Arong* | 6 *Chanúmla* | 6 *Hoau* | 6 *Oal-kolo-kwák* | 6 *Itoe* | 6 *Lokafum* |
| 7 *Sáwi* | | 7 *Panoha* | 7 *Shanoya* | 7 *Oal-ta-meak* | 7 *Henhóaha* |
| CHOWRA. | BOMPOKA | 8 *Talárom* | 8 *Komlánga* | LITTLE NICOBAR. | 8 *Pulo-kota* |
| 1 *Sanenya* | 1 *Poa-hat* | 9 *Kealya* | CONDUL. | 1 *Ileya* | 9 *Henpoin* |
| 2 *Hiwah* | 2 *Yat-Kirána* | TRINKUT. | 1 *Oal-nga-nát* | 2 *Endenya* | 10 *Pulo-bábl* |
| | | 1 *Tapiyáng* | 2 *Oal-dowa* | 3 *Pahonk* | 11 *Kopenheat* |
| | | 2 *Hoe-tamin* | | 4 *Temain.* | 12 *Pulo-Kunyl* |
| | | 3 *Ok-chuáka* | | 5 *Tiden,* | 13 *Pulo-pet* |
| | | | | 6 *Enfok.* | |
| | | | | 7 *Makachlan* | |

93°

94°

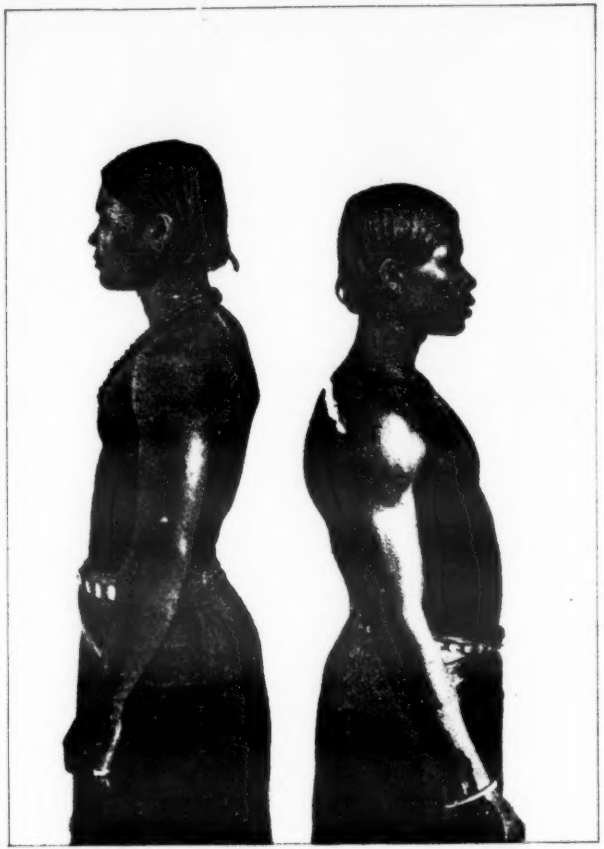
Lithographed at the

LONDON & DERBY.



BEMROSE & SONS. PHOTO TINT.

SHOM PEN.

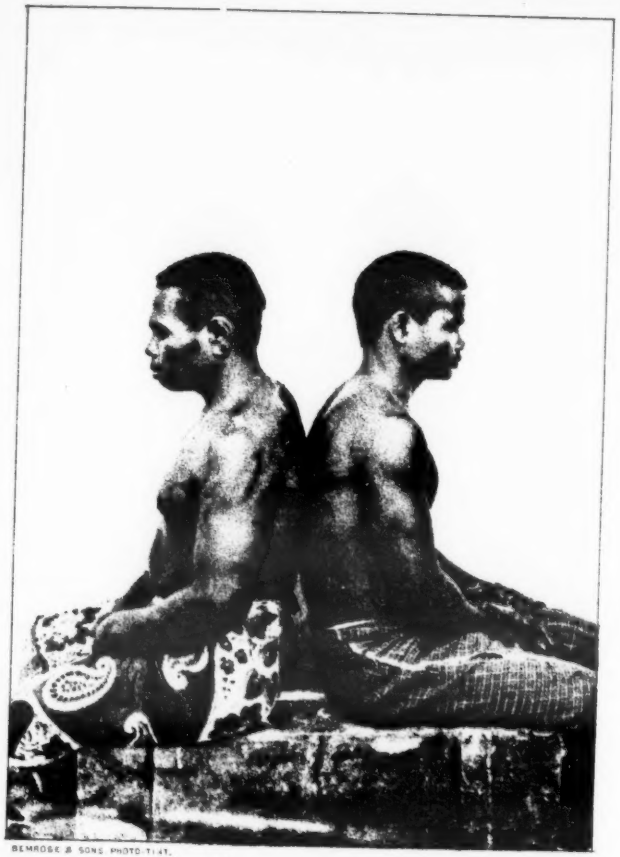


BEMROSE & SONS. PHOTO-TINT.

LONDON & DERBY.



NATIVES OF CENTRAL GROUP.

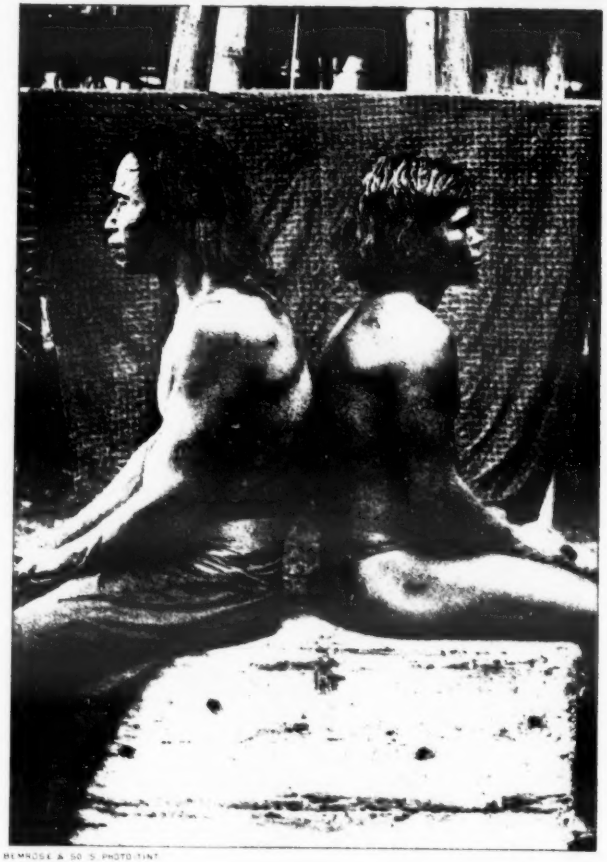


BEMROSE & SONS PHOTO-TINT.

LONDON & DERBY.



NATIVES OF TERESSA AND BOMPOKA.



BEMROSE & SON'S PHOTO-TINT

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COAST NATIVES OF GREAT NICOBAR.

in the very rare instances where hair grows in fair abundance on the face, it is customary among the Nicobarese youth, especially while remaining single, to cut off or pluck out the short scanty growth on the upper lip and chin, this is not only a concession to vanity but is also done to conciliate the fair sex who rightly regard such scanty appendages as unsightly.

At Teressa and Bompoka it is the fashion to wear the hair very short, and the effect of the constant clipping is to render it very coarse and makes it stand almost erect, hence the characteristic feature by which these natives can be most readily distinguished from their neighbours is the brush-like appearance of their cropped wigs. It is also said that the mothers in these islands with a view to producing the desired effect are in the habit of constantly combing and raising the hair off the scalp of their little ones.

Among the Shom Peñ or inland tribe the hair is generally quite straight; it is never cut, washed, oiled, or otherwise cared for, and consequently presents a dirty, matted appearance, and is infested with pediculi; it is seen in reflected light to be of a dull brown-black hue, but streaks of a peculiar yellowish-brown may in some cases be noticed under examination by transmitted light. Among this section of the race also only a very few instances of persons with grey hair have been observed.

### *Description of Plates XVIII to XXII.*

Plate XVIII. Map illustrating by means of colours, the distribution of dialects in the Nicobar Islands.

Plate XIX. Portraits of father and son, Shom Peñ, inland tribe of Great Nicobar.

Plate XX. Portraits of two young men, typical natives of the Central Group.

Plate XXI. Portraits of two men, typical natives of Teressa and Bompoka.

Plate XXII. Portraits of man and boy, coast natives of Great Nicobar.

These portraits are from negatives taken by Mr. Man, and show in each case a profile and full face.

N.B.—In explanation of certain references to appendices and sections which do not appear in this number of the Journal, the reader is informed that Mr. Man hopes to communicate to the Institute, in a series of papers, the results of his researches among the Nicobarese during a residence of many years in their midst. The references apply to these future papers.

DISCUSSION.

Prof. MELDOLA said that he so fully concurred in the remarks made by Mr. Man in the opening part of the paper which they had just heard, that he hardly felt justified in offering any remarks upon a people with whom he had only had an opportunity of coming into contact for a few weeks during the Eclipse Expedition of 1875. Among the points mentioned in the paper the thick dental incrustation caused by the constant chewing of betel was perhaps the character which first obtruded itself upon the notice of Europeans brought for the first time into contact with these people. The thickness of the incrustation was sometimes so great as to prevent the closing of the lips, and many of the Nicobarese whose photographs were exhibited appeared in consequence to be permanently open mouthed. He had been given to understand when in the Islands that it was not betel only which was chewed but a mixture of betel with some earthy matter, and he hoped that they would hear further on this point from Mr. Man. With reference to the carved wooden figures of which photographs were exhibited he mentioned that some religious significance was certainly attached to them because the natives of whom one of the figures was borrowed for the purpose of being photographed, lent the carving only on condition that it should be restored before sunset as they feared an attack of fever if the inmates of the hut slept without the protecting influence of the image. He hoped that in future communications Mr. Man would give them further information on the precise significance which the Nicobarese attached to these carved figures, some of which were by no means bad specimens of wood carving, although extremely grotesque in appearance. In concluding, Prof. Meldola stated that all who had studied Mr. Man's previous papers on the Andamanese would feel assured that the treatment of the anthropology of these equally interesting Nicobarese could not have fallen into better hands, and he thought that the Anthropological Institute was to be congratulated on being the means of giving publicity to such sound and exhaustive work as was being carried on by Mr. Man in the Bay of Bengal.

Mr. C. H. READ thought it would be of interest to those present, who had heard Mr. Man's valuable paper, to know that the specimens sent home by Mr. Man in illustration of his account of the Nicobarese, were now exhibited in the Ethnographical Gallery at the British Museum.

Mr. Alex. J. ELLIS, having been called upon by the Chairman, explained that his only work on Nicobarese had been to assist Mr. Man in the construction of an alphabet for writing that language, which he was glad to say had proved successful in constructing Mr. Man's Nicobarese Vocabulary, which would be published immediately.

# ANNUAL GENERAL MEETING.

JANUARY 22ND, 1889.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last Anniversary Meeting were read and signed.

The PRESIDENT declared the ballot open and appointed Mr. M. J. WALHOUSE and Mr. R. H. TIDDEMAN as Scrutineers.

Mr. A. L. LEWIS, the TREASURER, read the following report for the year 1888:—

## TREASURER'S REPORT FOR 1888.

The total receipts for the year 1888 have been £612 12*s.* 0*d.*, being £33 11*s.* 1*d.* less than last year. This diminution represents a difference of one life composition, £21, and a falling off of £12 16*s.* 9*d.* in the sales of publications, which latter item is much more to be regretted than the former. The expenditure for the year varies but little from that of 1887, and affords little room for retrenchment or for comment.

It is to an increase of income that the members must look as the only means of placing the finances of the Institute in a thoroughly satisfactory condition. Any such increase will be spent chiefly upon the *Journal* and other publications, which will not only be an advantage to the members individually, but will conduce to a larger sale of the publications themselves, and this will be an advantage to the Institute, both directly and indirectly, as well as to the science of which it forms the rallying point. While, then, original research and critical discussion are undoubtedly the most important works in which our members can engage, that of bringing in new and eligible members takes the next place, and can be readily undertaken by many who have not the opportunity of personally making scientific researches.

A. L. LEWIS,
*Treasurer.*

# ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

*Receipts and Payments for the Year ending 31st December, 1888.*

## RECEIPTS.

| | £ s. d. | £ s. d. |
|---|---|---|
| **Balances, January 1st, 1888:** | | |
| At Bankers | 116 18 10 | |
| In hands of Treasurer | 10 8 0 | |
| ,, Secretary (petty cash) | 4 0 8 | |
| | | 131 7 6 |
| **Subscriptions:** | | |
| For year 1888 | 373 16 0 | |
| ,, ,, 1889 | 3 3 0 | |
| Life Compositions | 63 0 0 | |
| Arrears | 70 7 0 | |
| | | 510 6 0 |
| **Sale of Publications:** | | |
| Messrs. Trübner & Co. | 68 4 1 | |
| Messrs. Longmans & Co. | 1 4 8 | |
| Office | 2 4 3 | |
| | | 71 13 0 |
| **Dividends:** | | |
| Four quarters on £900 3½ per cent. Metropolitan Board of Works Stock (less income tax) | | 30 13 0 |

## PAYMENTS.

| | £ s. d. | £ s. d. |
|---|---|---|
| **Rent**, one year to Michaelmas, 1888 (including coal and gas) | | 165 0 0 |
| **Printing:** | | |
| Journal, Nos. 60, 61, 62, 63, including illustrations and Authors' copies | 189 4 8 | |
| Miscellaneous | 16 6 6 | |
| | | 205 11 2 |
| **Salaries and Collector's Commission** | | 182 15 2 |
| **Stamps and Parcels** | 34 13 0 | |
| **Advertising** | | 3 6 8 |
| **Office Expenses:** | | |
| Stationery | 8 9 6 | |
| Insurance | 1 0 0 | |
| Miscellaneous | 2 8 0 | |
| | | 11 17 6 |
| **House Expenses:** | | |
| Cleaning rooms, &c. | 17 9 6 | |
| Attendance and Refreshments at Meetings | 24 10 0 | |
| | | 41 19 6 |

| | | | | |
|---|---|---|---|---|
| | BALANCES 31st December, 1888: | | | |
| | At Bankers ..... | 93 | 9 7 | |
| | Petty Cash ..... | 5 | 6 11 | |
| | | | | 98 16 6 |
| £743 19 6 | | | | £743 19 6 |

A. L. LEWIS, *Treasurer.*

Audited and found correct,

(Signed) EDWARD W. BRABROOK, } *Auditors.*
ROBT. B. HOLT, }

Mr. F. W. Rudler, the Secretary, then read the following Report:—

## Report of the Council of the Anthropological Institute of Great Britain and Ireland for the year 1888.

In the course of the past year the Institute has held thirteen ordinary meetings, in addition to the Annual General Meeting.

The following list gives the titles of the various papers and other communications which have been submitted to the Institute during the year:—

1. "On the Akkas, a Pigmy Race from Central Africa." By Professor William Henry Flower, C.B., LL.D., F.R.S., &c., Director of the Natural History Department of the British Museum. With Notes by Emin Pasha.
2. "On Skulls from the Hindu-Kush District." By J. G. Garson, Esq., M.D.
3. "Notes on the Japanese 'Go-hei,' or Paper Offerings to the Shinto gods" (with illustrative specimens). By Basil Hall Chamberlain, Esq. Communicated by Dr. Edward B. Tylor, F.R.S.
4. Exhibition of Decorated Arrows from the Solomon Islands. By Henry Balfour, Esq., B.A.
5. "Further Notes on the Australian Class Systems." By A. W. Howitt, Esq.
6. Exhibition of Inscribed Tablets from Babylon. By Cuthbert E. Peek, Esq., M.A., with Explanation by T. G. Pinches, Esq.
7. "The Races of the Babylonian Empire, from the Monuments." By G. Bertin, Esq.
8. Exhibition of Drawings, by M. Louis Siret, of objects found in S.E. Spain, that were made during the early ages of the use of Metal.
9. "Notes on the Akkas, with Examination of Accounts of Pigmy Tribes of Africa." By Captain Sir Richard F. Burton, K.C.M.G.
10. Exhibition of a Papuan Boy. By Captain Strachan.
11. "On some small highly-specialized forms of Stone Implements, found in Asia, North Africa, and Europe." By John Allen Brown, Esq., F.G.S.
12. "On the Early Ages of Metal in S.E. Spain." By MM. Henri and Louis Siret.
13. "Recent Anthropometry at Cambridge." By. J. Venn, D.Sc., F.R.S.
14. "Head Growth of Cambridge Students." By Francis Galton, Esq., F.R.S., President.
15. "Remarks on Replies by Teachers to Questions respecting Mental Fatigue." By Francis Galton, Esq., F.R.S.
16. "Notes on Rubbings from Ancient Inscribed Stone Monuments in Ireland." By G. H. Kinahan, Esq., M.R.I.A.
17. "On the Inhabitants of Paraguay." By Dr. W. Stewart.
18. "Remarks on Mr. Flinders Petrie's Collection of Ethnographic Types from the Monuments of Egypt." By the Rev. Henry George Tomkins.
19. Exhibition of Pottery, &c., from Recent Excavations in New Mexico. By Arthur S. Burr, Esq.
20. "The Nicobar Islanders." Part I. By E. H. Man, Esq., F.R.G.S.
21. A Series of Photographs of New Guinea Types. Exhibited by H. O. Forbes, Esq.
22. Photographs of Nicobarese. Exhibited by Professor R. Meldola, F.R.S.
23. "On a Method of Investigating the Development of Institutions; applied to Laws of Marriage and Descent." By Edward B. Tylor, Esq.. D.C.L., F.R.S.
24. A Gold Breastplate, from an Ancient Peruvian Grave. Exhibited by F. Galton, Esq., F.R.S., President.

25. Exhibition of Ethnological objects from the Jivaros of the Upper Amazons, and the Arawaks and Acaways of the interior of British Guiana. By F. W. Rudler, Esq., F.G.S., Secretary.
26. Exhibition of Two Palæolithic Implements from the Valley of the Thames, near Erith. By G. F. Lawrence, Esq.
27. "The Survival of Corporal Penance." By Osbert H. Howarth, Esq.
28. "Marriage Customs of the New Britain Group." By the Rev. Benjamin Danks.
29. Exhibition of a New Form of Anthropometric Instrument, specially designed for the use of travellers. By J. G. Garson, Esq., M.D.
30. "Social Regulations in Melanesia." By the Rev. R. H. Codrington, D.D.
31. "Australian Message Sticks and Messengers." By A. W. Howitt, Esq., F.G.S.
32. "The Distribution and Density of the Old British Population of Hampshire." By T. W. Shore, Esq., F.G.S., F.C.S.
33. "The Monument known as 'King Orry's Grave,' compared with tumuli in Gloucestershire." By Miss A. W. Buckland.

During the year four numbers of the quarterly *Journal* have been punctually issued: namely, Nos. 62, 63, 64 and 65, containing 380 pages of letterpress, illustrated with 13 plates and several woodcuts.

Eleven new members have been elected in the course of the year and one corresponding member has been raised to the Honorary list; but the Institute has, unfortunately, lost, partly by death, and partly by resignation, no fewer than 27 ordinary and 4 honorary members.

It is with much regret that the Council reports the decease of the following members:—

*Honorary Members.*—Dr. R. G. Latham, Mr. W. Gifford Palgrave, the Hon. E. G. Squier, and Dr. Philip A. Walther.

*Ordinary Members.*—Mr. T. Bendyshe, Dr. W. Camps, Colonel F. Duncan, Mr. W. Eassie, Mr. T. H. Edwards, Prof. E. Tyrrell Leith, Sir H. Sumner Maine, Mr. F. J. Morgan, Mr. W. G. Ranger, Mr. T. W. U. Robinson, and Dr. T. Harrington Tuke.

The former and present states of the Institutes, with regard to the number of members, are compared in the following table:—

| | Honorary. | Corresponding. | Compounders. | Ordinary. | Total. |
|---|---|---|---|---|---|
| January 1st, 1888 | 44 | 75 | 91 | 239 | 449 |
| Since elected .. | 1 | .. | .. | 11 | 12 |
| Since deceased .. | 4 | .. | 4 | 7 | 15 |
| Since retired or struck off .. | .. | 1 | .. | 16 | 17 |
| January 1st, 1889 | 41 | 74 | 90 | 224 | 429 |

As this table shows a net loss during the year, the Council takes this opportunity of expressing its earnest desire that all who have at heart the interests of Anthropological Science in this country, will endeavour to maintain the numerical strength and effectiveness of the Institute by procuring the nomination of new candidates for membership.

The Council notes, as a satisfactory sign of increasing interest in Anthropology, that the Anthropometric Laboratory, established at South Kensington, by Mr. Francis Galton, and mentioned in his last Anniversary Address, has been open during the year, and that nearly 1,200 persons have been measured in various ways, and the measurements registered for future reference.

The Council has learnt, with much satisfaction, that in the reconstruction of the Government Grant Committee of the Royal Society, the President of the Anthropological Institute has been appointed a member.

The Council is also pleased to learn that the India Council has seen fit to grant a subsidy to Mr. Man, towards the preparation of his Nicobarese Vocabulary.

It may be mentioned that the Anthropological Section of the British Association held a successful Session at Bath, under the Presidency of General Pitt-Rivers, one of the Vice-Presidents of the Institute.

The second volume of his important work on "Explorations in Cranborne Chase," has been recently issued and freely distributed at his private expense.

Mr. Francis Galton's second term of office, as President, has now expired, and the Council desires to put on record its sense of the valuable services which he has rendered to the Institute, and to the cause of Anthropological Science in general, during the past four years. The many ways in which Mr. Galton has promoted the interests of the Institute demands, in an exceptional manner, the grateful acknowledgment of the members.

The Council has nominated as Mr. Galton's successor, Dr. John Beddoe, F.R.S., of Clifton, one of the Vice-Presidents of the Institute, and a former President of the Anthropological Society before the formation of the Institution. His numerous and substantial contributions to ethnology and physical anthropology are appreciated by all who take an interest in the science, and the Council feels that the future of the Institute may be committed with confidence to his guidance.

On the motion of the Earl of NORTHESK, seconded by Dr. GARSON, the Reports of the Treasurer, and of the Council, were adopted.

The PRESIDENT then delivered the following address :—

ADDRESS *delivered at the* ANNIVERSARY MEETING *of the* ANTHROPOLOGICAL INSTITUTE *of* GREAT BRITAIN *and* IRELAND, *January* 22*nd*, 1889.

By FRANCIS GALTON, Esq., F.R.S., President.

IT would have been a pleasure to me in this address, given at the conclusion of my office as your President, to have cast a retrospect over the proceedings of our Institute during the four years that I have had the honour to hold it. But the subjects that have come before us are so varied that it seemed difficult to briefly summarize them in a manner that should not be too desultory.

On the whole, I thought it might be more useful if I kept to a branch of anthropometry with which many inquiries have made me familiar, and took the opportunity of urging certain views that seem to be worthy the attention of anthropologists.

Before entering upon these more solid topics, let me mention that the laboratory of which I spoke in my last address has been in work during the past year, and that about 1200 persons have been already measured at it in many ways, some more than once. I lay on the table a duplicate of one of the forms of application to be measured, and one of the filled-up schedules. It will be observed that I now have the impressions made in printers' ink of the two thumbs of each person who is measured, being desirous of investigating at leisure the possibilities of employing that method for the purpose of identification, not forgetting the success that attended Sir W. Herschel's use of it in India, but conscious at the same time of practical difficulties. There is no doubt that the imprints of the thumb or finger of different persons vary so much that a glance suffices to distinguish half a dozen varieties, while a minute investigation shows an extraordinary difference in small, though perfectly distinct, peculiarities. Neither is there any room for doubt

that these pecularities are persistent throughout life; nor, again that so satisfactory a method of raising a very strong presumption of identity would be valuable in many cases. It will suffice to quote the following. A newspaper was lately sent me from the distant British settlement of North Borneo, where, owing to the wide and rapid spread of information nowadays, attention had been drawn to an account of a lecture I gave on one of the Friday evenings last spring, at the Royal Institution. It was on "Personal Description and Identification," and a writer in the *British North Borneo Herald* commented upon the remarks there made on finger imprints. He spoke of the great difficulty of identifying coolies either by their photographs or measurements, and added that the question how this could best be done would probably become important in the early future of that country. I also am assured that the difficulty of identifying pensioners and annuitants has led to frequent fraud from personation, involving in the aggregate a very large sum of money annually, as there is good reason to believe. If finger imprints could be practically brought into use, such frauds would be extremely difficult. I am still unable to speak positively as to the easiest and best way of making them, but the plan adopted at the laboratory is as follows. A copper plate is smoothly covered with a very thin layer of printers' ink by a printers' roller, the plate being cleaned every day. Either the plate, or the roller, but preferably the roller, is lightly touched by the thumb, which is afterwards pressed on paper. As the layer of ink is thin, none of it penetrates into the delicate furrows of the skin, but the ridges only are inked, and these leave clear impressions. In this way a permanent mark is registered. A little turpentine cleans the fingers effectually afterwards. But for purposes of identification a simpler process is necessary, one by which a person suspected of personation could furnish an imprint for comparison with the registered mark without having recourse to the troublesome paraphernalia of the printer. Such a process may perhaps be afforded by slightly smoking a piece of smooth metal or glass

over the candle, pressing the finger on it, and then making the imprint on a bit of gummed paper that is slightly damped. The impression is particularly distinct, and is sufficiently durable for the purpose. As for the gummed paper, luggage labels can be used; even the fringe to sheets of postage stamps is broad enough to include as much of the impression as is especially wanted—namely, where the whorl of ridges takes its origin.

I hope at some future time to recur to this subject.

*Correlation.*—The various measurements made at the laboratory have already afforded data for determining the general form of the relation that connects the measures of the different bodily parts of the same person. We know in a general way that a long arm or a long foot implies on the whole a tall stature—*ex pede Herculem;* and conversely that a tall stature implies a long foot. But the question is whether their reciprocal relation, or correlation as it is commonly called, admits of being precisely expressed. Correlation is a very wide subject indeed. It exists wherever the variations of two objects are in part due to common causes; but on this occasion I must only speak of those correlations that are of anthropological interest. The particular problem I first had in view was to ascertain the practical limitations of the ingenious method of anthropometric identification due to M. A. Bertillon, and now in habitual use in the criminal administration of France. As the lengths of the various limbs in the same person are to some degree related together, it was of interest to ascertain the extent to which they also admit of being treated as independent. The first results of the inquiry, which is not yet completed, have been to myself a grateful surprise. Not only did it turn out that the expression and the measure of correlation between any two variables are exceedingly simple and definite, but it became evident almost from the first that I had unconsciously explored the very same ground before. No sooner had I begun to tabulate the data than I saw that they

ran in just the same form as those that referred to family likeness in stature, which were submitted to you two years ago. A very little reflection made it clear that family likeness was nothing more than a particular case of the wide subject of correlation, and that the whole of the reasoning already bestowed upon the special case of family likeness was equally applicable to correlation in its most general aspect.[1]

It may be recollected that family likeness in any given degree of kinship—say that between father and son—was expressed by the fact that any peculiarity, that is to say, any difference from mediocrity in the father appears in the son, reduced on the average to just one-third of its amount. Conversely, however paradoxical it might at first sight appear, any pecularity in a son appears in the father, also reduced on the average to one-third of its amount. The "regression," as I called it, from the stature of the known father to the average son, or from the known son to the average father, was from 1 to $\frac{1}{3}$; from the known brother to the unknown brother it was $\frac{2}{3}$; from uncle to nephew, or from nephew to uncle, it was $\frac{2}{9}$; and in kinship so distant as to have no sensible influence, it was from 1 to 0. Whether the peculiarity was large or small, these ratios remained unaltered. The reason of all this was thoroughly explained, and need not be repeated here. Now the relation of head-length to head-breadth, whose variations are on much the same scale, or speaking in technical language, whose probable errors are the same, is identical in character to the relation between kinsmen. There is regression in both cases, though its value differs. The lengths of head-lengths and head-breadths are akin to each other in the same sense as kinsmen are. So it is in the closer relation between the lengths of symmetrical limbs, left arm to right arm, left leg to right leg. The regression would be strictly reciprocal in these cases. When, however, we compare limbs whose variations take place on different scales, the differences of scale have

[1] "Proc. Roy. Soc.," 1886, p. 42, and "Journ. Anthrop. Inst.," 1885, p. 252.

to be allowed for before the regression can assume a reciprocal form. The plan of making the requisite allowance is perfectly simple; it merely consists in dividing each result by the probable error of any one of the observations from which it was deduced. Unfortunately the method cannot be briefly explained except by using these technical terms. In some cases the scale of variation in the two correlated members is very different, and this divisor may be very large. Thus the length of the middle finger varies at so very different a rate from that of the stature that 1 inch of difference of middle finger length is associated on the average with 8·4 inches of stature. On the other hand, 10 inches of stature is associated on the average with 0·6 inch of middle finger length. There is no reciprocity in these numerals; yet, for all that, when the scale of their respective variations is taken into account by using the above-mentioned divisor, the values become strictly reciprocal. I shall be better able to enter more fully into this subject later on, towards the close of this address.

*Variety.*—The principal topic of my further remarks will be the claims of Variety to more consideration from anthropologists than it usually receives. Anthropologists commonly narrow their inquiries to the purpose of ascertaining the mean values of different groups, while the variety of the individuals who constitute them is too often passed over with contented neglect. It seems to me a great loss of opportunity when, after observations have been laboriously collected and subsequently discussed in order to obtain mean values, the very little extra trouble has not been taken that would determine such other values as would go far to express the variety of the individuals in those groups. Much experience some years back, and much new experience during the past year, has proved to me the ease with which variety may be adequately expressed, and the high importance of taking it into account. Numerous problems that ought to be of especial interest to anthropologists, deal solely with variety.

There can be little doubt that most persons fail to have an adequate conception of the orderliness of variability, and think it useless to pay scientific attention to variety, as being, in their view, a subject wholly beyond the powers of definition. They forget that what is confessedly undefined in the individual may be definite in the group, and that uncertainty as regards the one is in no way incompatible with statistical assurance as regards the other. Almost everybody is familiar nowadays with the constancy of the Average in different samples of the same large group, but they do not often realise the way in which a similar statistical constancy permeates the whole of the relations between the various members of the group. The Mean or the Average is practically nothing more than the middlemost value in a marshaled series. A constancy analogous to that of the Mean characterises each value that occupies the other fractional positions, such as the 10th per cent., or the 20th per cent. of the total length of the marshaled series. The condition of constancy is not a peculiar attribute of the 50th per cent., or middlemost.

Greater interest is usually attached to individuals who occupy positions towards either of the ends of a marshaled series, than to those who stand about its middle. For example, an average man is morally and intellectually an uninteresting being. The class to which he belongs is bulky, and no doubt serves to keep the course of social life in action. It also affords, by its inertia, a regulator that, like the fly-wheel to the steam-engine, resists sudden and irregular changes. But the average man is of no direct help towards evolution, which appears to our dim vision to be the primary purpose, so to speak, of all living existence. Evolution is an unresting progression; the nature of the average individual is essentially unprogressive. His children tend to resemble him exactly, whereas the children of exceptional persons tend to regress to mediocrity. Consider the interest attached to variation in the moral and intellectual nature of man and the value of variability in those respects. For example, the average worth of the Hebrew race shows little that is worthy

of note, but that race has been of peculiar interest on account of the great varieties of character that it has produced. Its variability in ancient and modern times seems to have been extraordinarily great. It has been able to supply men, time after time, who have towered high above their fellows, and have left enduring marks on the history of the world.

Some thorough-going democrats may look with complacency on a mob of mediocrities, but to most other persons they are the reverse of attractive. The absence of elevated and heroic natures in any group of men is a heavy set-off against the freedom from a corresponding number of very degraded forms. The general standard of thought and morals in a mob of mediocrities must be mediocre, and, what is worse, contentedly so. The lack of living men to afford lofty examples, and to educate the virtue of reverence, must leave an irremediable blank. All men would in that case find themselves at nearly the same dead average level, each as meanly endowed as his neighbour.

These remarks apply with obvious modifications to variety in the physical faculties. Peculiar gifts, moreover, afford an especial justification for division of labour, each man doing that which he can do best.

The method I have myself usually adopted for expressing and dealing with the variety of the individuals in a group, so as to treat a whole population in a compendious way, has been already explained on more than one occasion. I should not have again alluded to it had I not had much occasion of late to test and develop it, also to devise an unpretentious little table of figures that I call a "table of normal distribution," which has been of singular assistance to myself. I trust it may be equally useful to other anthropologists. It is appended to these remarks, and I should like after a short necessary preface to say something about it. The table and its origin, and several uses to which it has been applied, will be found in a book by myself, that is on the point of publication, called "Natural Inheritance" (Macmillan and Co.). All the data to which I shall refer will be found in that book also, except such as concern correlation.

These accompanied a memoir read by me only a month ago before the Royal Society.[1]

The first step in the problem of expressing variety among the individual members of any sample, is to marshal their measures in order, into a class. We begin with the smallest measure and end with the greatest. The object of the next step is to free ourselves from the embarrassment due to the different numbers of individuals in different classes. This is effected by dividing the class, whatever its size may be, into 100 equal portions, calling the lines that divide the portions by the name of grades. The first of these portions will therefore lie between grades 0° and 1°, and the hundredth and last portion between grades 99° and 100°. We have next to find by interpolation the values that correspond to as many of these grades as we care to deal with. It is of no consequence whether or no the number in the class is evenly divisible by 100, because we can interpolate and get the values we want, all the same. This having been done, the value that corresponds to the 50th grade will be the middlemost. It is the equivalent for all ordinary purposes to the mean or average value; but as it may not be strictly the same, it is right to call it by a distinctive name,

[1] "Proc. Roy. Soc.," Dec. 20, 1888, vol. 45. "Correlations and their Measurement, chiefly from Anthropometric Data." The general result of the inquiry was that, when two variables that are severally conformable to the law of frequency of error, are correlated together, the conditions and measure of their closeness of correlation admits of being easily expressed. Let $x_1$, $x_2$, $x_3$, &c., be the deviations in inches, or other absolute measure of the several "relatives" of a large number of "subjects," each of whom has a deviation, $y$, and let X be the mean of the values of $x_1$, $x_2$, $x_3$, &c. Then (1) $y = r\mathrm{X}$, whatever may be the value of $y$. (2) If the deviations are measured, not in inches or other absolute standard, but in units, each equal to the Q (that is, to the probable error) of their respective systems, then $r$ will be the same, whichever of the two correlated variables is taken for the subject. In other words, the relation between them becomes reciprocal; it is strictly a correlation. (3) $r$ is always less than 1. (4) $r$ (which, in the memoir on hereditary stature, was called the ratio of regression) is a measure of the closeness of correlation. (5) The probable error, or Q, of the distribution of $x_1$, $x_2$, $y_3$, &c., about X, is the same for all values of $y$, and is equal to $\sqrt{(1-r^2)}$ when the conditions specified in (2) are observed.

It should be noted that the use of the Q unit enables the variations of the

and none simpler or more convenient occurs than the letter M. So I will henceforth use M to denote the middlemost or median value, or, in other words, that which corresponds to the 50th (centesimal) grade.

The difference between the extreme ends of a marshaled series is no proper measure of the variety of the men who compose it. However few may be the objects in the series, it is always possible that a giant or a dwarf, so to speak, may be included among them. The presence of either would mislead as to the range of variety likely to be found in another equally numerous sample taken from the same group. The values in a marshaled series run with regularity only about its broad and middle part; they never do so in the parts near to either of its extremities. In a series that consists of a few hundreds of individuals, the regularity is usually found to begin at about grade 5°, and to continue up to about grade 95°. Therefore it is out of the middle part, between 5° and 95°, or better out of a still more central portion of it, that points should be selected between which the rate of its variety may be measured. Such points are conveniently found at the 25th and the 75th grades. Just as the grade 50° divides the class into two equal parts, so the grades 25° and 75° subdivide it into quarters, and the difference between those values affords an irreproachable basis for the unit of variety. The actual unit is taken as the half of the value of that difference, because the value at 25° tends to be just as much below that at 50°, as the value at 75° is above it. Therefore the average of these two values is a better measure than their sum. Briefly, if we distinguish the measure at 25° by the letter $Q_1$, and that at 75° by $Q_3$, then the unit of variety is $\frac{1}{2}(Q_3 - Q_1)$, and this unit we will henceforth call Q. It is practically, but not strictly, identical with the "probable error" of a single observation, and is a useful symbol, as con-

most diverse qualities to be compared with as much precision as those of the same quality. Thus, variations in lung-capacity which are measured in volume can be compared with those of strength measured by weight lifted, or of swiftness measured in time and distance. It places all variables on a common footing.

sisting of a single syllable and a single letter instead of the 5 syllables and the 13 letters that form the very misleading phrase of "probable error." As M measures the average, so Q measures the variety, and they are independent of one another. In strength, for example, the relation of Q to M in the particular group of adult males on which I worked was as 1 to 10; in the statures of the same group it was as 1 to 40; in breathing capacity as 1 to 9; in weight as 1 to 14.

The mean or average is an arithmetical muddle of all the values in the series; it presents to the imagination by no means so clean an idea as the middlemost value M. Therefore, although the peculiarities of an individual are commonly considered in the light of deviations from the mean or average value, I prefer to reckon them as deviations from M. Practically the two methods are identical, but I find the latter more convenient to work with, and believe it to be the better of the two in every other way.

The causes and the laws of deviation, or of variation, are identical with those of error, and the well-known law of frequency of error gives data whence the *relative* values of the deviations at the several grades may be calculated for any normal series. If we know the actual deviation at any one specified grade, then the *absolute* values of those at every other grade can be calculated; consequently the variety of the whole series is expressed by only two data, a grade and the corresponding deviation.

The small table of distribution, of which I spoke, gives the values at each grade when Q is equal to 1. In this case the value at 25° is − 1, and that at 75° is + 1. If we desire to determine the Q of any such series, the only required datum, as has been just laid, is the value of the deviation at some one known grade; then, by dividing that deviation by the tabular value, we obtain Q at once. Or, conversely, if we know the Q of the series, and wish to calculate the deviation at any given grade we multiply the tabular deviation by Q. Thus, in the stature of men, which varies in an approximately normal

manner, the value of Q is about 1·7 inch, therefore to find the deviation in stature at any grade among adult males, we multiply the tabular value by 1·7 inch.

If we know the *measures* at any two specified grades of a normal series, we are easily able to calculate both Q and M, and can thence derive the measures at any other desired grades. I have long since pointed out the possibility of a traveller availing himself of this method of anthropological investigation; but, for the want of the annexed table of distribution, he would probably be puzzled in making the necessary calculation. With the aid of this table the calculation is most readily performed. Let us suppose that the traveller is among savages who use the bow, and that he desires to learn as much as he can about their strengths. He selects two bows; the one somewhat easy to draw, and the other somewhat difficult, and at his leisure, either before or after the experiment he ascertains exactly how many pounds weight is required to draw them severally to the full Then by exciting emulation and by the offer of small prizes, he induces a great many of the natives to try their strengths upon them. He notes how many make the attempt, and how many of them fail in either test. This is all the observation requisite, though common sense would suggest the use of three and not two bows, in order that the data from the third bow might correct or confirm the results derived from the other two. Let us work out a case, not an imaginary one, but derived from tables I have already published, and of which I will speak directly. Let the problem be as follows:—

30 per cent. of the men fail to exert a pulling strength of 68 pounds; 60 per cent. fail to pull 77 pounds. What is the Q and the M of the group?

Consider this 30 per cent. to be the exact equivalent of grade 30°, and the 60 per cent. of grade 60°. The reason why the percentage of failure, and the number of the grade are always to be taken as identical will be found in a footnote to the table, and I need not stop to speak of it. Now, the tabular value at grade 30° is $-0·78$; that at 60° is $+0·38$; the difference between them

being 1·16. On the other hand, the difference between the two test values of 68 pounds and 77 pounds is 9 pounds. Therefore Q is equal to 9 pounds divided by 1·16; that is, to 7·8 pounds. M may be obtained by either of two ways, which will always give the same answer. We may subtract 0·38 × 7·8 pounds from 77 pounds, or we may add 0·78 × 7·8 pounds to 68 pounds. Each gives 74 pounds. Observation gave precisely these values both for Q and for M. The data were published in the Journal of this Institute in 1884 as a table of "percentiles," and were derived from measures made at the International Health Exhibition. The value of M is given directly in the table, but that of Q happens not to be given there; it may easily be found by interpolation between those that are.

That table of percentiles affords excellent material for experimental calculations on the principle of this test, and for estimating its trustworthiness in practice. It contains a variety of measures referring to eighteen different series, all corresponding to the same grades—namely, to 5°, 10°, 20°. and onwards for every tenth grade up to 90° and ending with 95°. The measures refer to stature, height sitting above seat of chair, span, weight, breathing capacity, strength of pull, strength of squeeze, swiftness of blow, keenness of eyesight, and in each case the values are given for adult males and adult females separately. I have since found ("Natural Inheritance," pages 56, 201), that when the deviations are all reduced in terms of their respective Q values, by dividing each of them by its Q, that the average value of all the deviations at each of the grades in the eighteen series closely corresponds to the normal series, though individually they differ more or less from it, some in one way, some in another. On the whole, the error of treating an unknown series as if it were a normal one can rarely be very large, always supposing that we do not meddle with grades lower than 5° or higher than 95°.

It will be of interest to put the comparison on record. It is as follows:—

| Grades .... .... | 5° | 10° | 20° | 30° | 40° | 50° |
|---|---|---|---|---|---|---|
| Observed .... .... | − 2·44 | − 1·87 | − 1·24 | − 0·77 | − 0·40 | 0 |
| Normal<br>− below 50°<br>+ above 50° .... | 2·44 | 1·90 | 1·25 | 0·78 | 0·38 | 0 |
| Observed .... .. | + 2·47 | + 1·92 | + 1·21 | + 0·75 | + 0·38 | 0 |
| Grades .... ... | 95° | 90° | 80° | 70° | 60° | 50° |

The "observed" are the mean values, made as above described, of the eighteen series; the "normal" are taken from the table of distribution given further on.

An ingenious traveller might obtain a great number of approximate but interesting data by the method just described, measuring various faculties of the natives, such as their delicacy of eyesight and hearing, their swiftness in running, their accuracy of aim with spear, arrow, boomerang, sling, gun, and so forth, laterally from the object aimed at, or else vertically; distance of throw, the stature, and much else. But he should certainly use three test objects, and not two only.

It should be remarked that, if the distribution of deviation proved to be constant throughout any large class of faculties, though the Q might differ in different sub-classes of it, then, even though the distribution of that faculty was very far indeed from being normal, an appropriate table of distribution could still be compiled in order to solve such problems as those mentioned above. I have as yet no accurate data to put this idea to a practical test.

There are three convenient stages of approximation in expressing the variety of the various measures in a series, each of which reaches considerably nearer to precision than the one before. The first is to give only Q and M; the second is to record the measures at the grades 10°, 25°, 50°, 75°, and 90°; the third is the more minute method, adopted in the tables of

percentiles—viz., to give the measures at 5°, 10°, 20°, &c., 80°, 90°, and 95°. It may in some cases be found worth while to go further, say to 1° and 99°, or even also to 0°·1, and 99°·9. So much for the method of expressing variety.

The use of Q is by no means limited to the objects just named. It is a necessary datum wherever the law of frequency of error has to be applied, whose properties are applicable to a very large number of anthropological problems with more accuracy of result than might have been anticipated, as the series are only approximately normal. This has been practically shown by the agreement among themselves of several inquiries to which I will shortly allude. It is theoretically defensible by two considerations. The one is that the law of frequency supposes the amount of error or of deviation to be the same in symmetrically disposed grades on either side of 50°, their signs being alone different, *minus* on the one side of 50° and *plus* on the other. Now, in an observed series there may be, and often is, a want of symmetry, but if the deviate, say at 70°, is as much greater than the normal value as the deviate at 30° is less than the normal, then the effects of these two upon the final result will be much the same as if there had been exact symmetry at those points. The other consideration is that any nonconformity between the observed deviates and the theoretical ones mostly affects the extremities of the series, and consequently has but a small and perhaps insensible effect on the broad general conclusions. We need care little for any vagaries outside of the grades 5° and 95°, if the intervening portion gives fairly good results. As the latter forms nine-tenths of the whole series, the irregularities in the remaining tenth are of small relative importance.

One great use of Q or of any of its equivalents, as the mean error, &c., is to enable us to estimate the trustworthiness of our average results. We require to know both Q and the number of the observations, before it is possible to estimate the degree of dependence to be placed on M. If only one observa-

tion was accessible, then the degree of its trustworthiness (its "probable error") would of course be equal to Q; in other words, its error would be just as likely as not to exceed Q. If there were two, two hundred, two thousand, or any other number of observations, the probable errors of their respective values M would be reduced, but not in simple proportion. They would be equal to Q divided by the square roots of those numbers.

When we desire to ascertain the trustworthiness of the difference between the M values of two series, as between the mean statures of the professional and artisan class as derived from certain observations, the properties of the law of frequency of error must again be appealed to. Anthropologists are much engaged in studying such differences as these; but from their disregard of the simple datum Q or of some one of its equivalents, and from not being familiar with the way of employing them, there is usually a lamentable and quite unnecessary vagueness in the value that can be assigned to their results. This is especially the case in comparisons between the average dimensions of the skulls of various races, when the average values are alone given, and when they have been derived, as is often the case, from the measurement of only a few specimens. An almost solitary exception to this needless laxity in statistical treatment will be found in a brief but admirably-expressed memoir by Dr. Venn, the well-known author of the "Logic of Chance." It is upon Cambridge anthropometry, and was published in the last number of the Journal of this Institute. It deserves to be a model to those who are engaged in similar inquiries.

Another class of investigations in which a knowledge of Q is essential, was spoken of some time back—namely, into the questions of Correlation in the widest sense of the word. These problems have nothing to do with the relations of the M values, but are solely concerned with variations, that is with the deviations from M at the various grades. It is true that a knowledge of M is requisite. We have to subtract it from the measures in

order to get at the deviations. But after this is done, M is put aside. It has no part in the work of the problem; it is only after the results have been arrived at without its use that it is again brought forward and added to them. Numerous properties of the law of frequency of error in which Q is the datum, were utilized in my inquiries into family likeness in stature, and in all cases they brought out consistent results. An excellent example of their consistency was seen in the results of the methods employed to determine the variety of individual statures in families of brothers. Four different properties of the law had to be applied to partly different samples of the same group in order to determine the value of the Q of stature in fraternities, and they respectively gave 1·07, 0·98, 1·10, and 1·10 inch, which, statistically speaking, are much alike. Certain properties of the law of frequency of error were also applied to family likeness in eye colour, with results that gave by calculation the total number of light-eyed children in families differently grouped according to their parentage and grandparentage, and according to three different sets of data. The resulting figures were 623, 601, and 614 respectively, the observed number being 629 (Proc. Roy. Soc., 1886, p. 415). Other properties of the same law have been applied by myself in the book already mentioned to determine the ratio of artistic to non-artistic children in families whose parentages were known to be either both artistic, one artistic and one not, or neither artistic. They gave the ratios of 64, 39, and 21 respectively, as against the observed values in 1507 children, of 60, 39, and 17.

Lastly, as regards the correlation of lengths of the different limbs. It has already been shown that the correlation connects the deviations, and has nothing to do with the mean or average values. Now, to express this relation truly, so that it shall be reciprocal, the scale of deviation of the correlated limbs, say, for example, of the cubit and of the stature of adult males, must be reduced to a common standard. We therefore reduce them severally to scales in each of which their own Q is the

unit. The Q of the cubit is 0·56 inch, therefore we divide each of its deviations by 0·56. The Q of the stature is 1·75 inch, so we divide each of its deviations by 1·75. When this is done the correlation is perfect. The value of regression is found to be 0·8, whether the cubit be taken as the "subject" and the mean of the corresponding statures as the "relative," or *vice versâ*.

The value of the regression was ascertained for each of many pairs of the following elements, and a comparison made in each case between the correlated values as observed and those calculated from the ratio of regression. The coincidence was close throughout, quite as much so as the small number of cases under examination, 350 in all, could lead us to hope. The elements were nine in number,[1] viz., head length, breadth of head, length of right leg below the knee, of left cubit, of left middle finger, of the height sitting above the chair, of stature, of the differences between the two foregoing (which indicate the total

[1] The head length is here the maximum length measured from the notch below the brow. The cubit is measured with the hand prone, from the flexed elbow to the tip of the middle finger. The height of knee is taken from a stool, on which the foot rests with the knee flexed at right angles; from this the measured thickness of the heel of the boot is subtracted. All measures had to be made in the ordinary clothing. The M and Q values of these elements among adult males were found to be as follows: left cubit, 18·05 and 0·56; stature, 67·2 and 1·75; head length, 7·62 and 0·19; head breadth, 6·00 and 0·18; left middle finger, 4·54 and 0·15; height of right knee, 20·50 and 0·80; all the measures being in inches. The values of $r$ in the following pairs of variables were found to be: head length and stature, 0·35; left middle finger and stature, 0·70; head breadth and head length, 0·45; height of knee and stature, 0·9; left cubit and height of right knee, 0·8. The comparison of the observed results with those calculated from the above data showed a very close agreement (Proc. Roy. Soc., Dec. 20, 1888). The measures were of 350 male adults, containing a large proportion of students barely above twenty-one years of age and several artizans, made at the laboratory at South Kensington, belonging to the author. The smallness of the number of measures, viz., 350, is of little importance, as the results run with fair smoothness. Neither does the fact of most of the persons measured being hardly full grown, and of others being of the generally short class of artizans, affect the main results. It somewhat diminishes the values of M, and very slightly increases that of Q, but it cannot be expected to have any considerable influence on the value of $r$.

length of the lower limbs), and of the span. Anthropologists seem to have little idea of the wide fields of inquiry open to them as soon as they are prepared to deal with the variety of individuals, and cease to narrow their view to the consideration of the average value of all of them.

Enough has now been said to justify the claims with which I started, and which take this final form. First, wherever it is likely to be of use, that, in those series of which the M is calculated, the measures at a certain number of selected grades should also be calculated and given, sufficient to enable the rest of the marshaled series to be found with adequate accuracy by interpolation. Secondly, that the value of Q or of one of its equivalents should always be given as well, and for two reasons. The one is, that M and Q suffice between them to give an approximate determination of the whole series, which is the more closely approximate as the series is more closely of the normal type; and, secondly, because Q or one of its equivalents is an essential datum before any application can be made of the law of frequency of error. The properties of this law are, as we have seen, largely available in anthropological inquiry. They enable us to define the trustworthiness of our results, and to deal with such interesting problems as those of correlation and family resemblance, which cannot be solved without their help.

*Table of ordinates to the normal Curve of Distribution, in which the unit = the probable error, and the grades, which are the abscissæ, run from 0° to 100°.*

| Grades. | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | ∞ | −3·45 | −3·05 | −2·79 | −2·60 | −2·44 | −2·31 | −2·19 | −2·08 | −1·99 |
| 10 | −1·90 | −1·82 | −1·74 | −1·67 | −1·60 | −1·54 | −1·47 | −1·42 | −1·36 | −1·30 |
| 20 | −1·25 | −1·20 | −1·15 | −1·10 | −1·05 | −1·00 | −0·95 | −0·91 | −0·86 | −0·82 |
| 30 | −0·78 | −0·74 | −0·69 | −0·65 | −0·61 | −0·57 | −0·53 | −0·49 | −0·45 | −0·41 |
| 40 | −0·38 | −0·34 | −0·30 | −0·26 | −0·22 | −0·19 | −0·15 | −0·11 | −0·07 | −0·04 |
| 50 | +0·00 | +0·04 | +0·07 | +0·11 | +0·15 | +0·19 | +0·22 | +0·26 | +0·30 | +0·34 |
| 60 | +0·38 | +0·41 | +0·45 | +0·49 | +0·53 | +0·57 | +0·61 | +0·65 | +0·69 | +0·74 |
| 70 | +0·78 | +0·82 | +0·86 | +0·91 | +0·95 | +1·00 | +1·05 | +1·10 | +1·15 | +1·20 |
| 80 | +1·25 | +1·30 | +1·36 | +1·42 | +1·47 | +1·54 | +1·60 | +1·67 | +1·74 | +1·82 |
| 90 | +1·99 | +1·99 | +2·08 | +2·19 | +2·31 | +2·44 | +2·60 | +2·79 | +3·05 | +3·45 |

This table is an inverse rendering of the values derived by interpolation from the ordinary table of the probability integral, but its unit is changed from that of the modulus to that of the probable error, or what is almost exactly the same thing, to Q; and the (centesimal) grades are reckoned from 0° to 100°. In the usual way of reckoning, the 50th grade should have been reckoned as 0°, and the deviations should have run on the one side down to − 50°, and on the other up to + 50°.

Referring to what was said some way back, that if 30 per cent. of the natives whose strength was being tested fail to pull 60 pounds, then 60 pounds must be taken as the measure corresponding to the grade of 30°; the reason for this is as follows: The 30th grade separates the man who ranks 30th in a class of 100 men from his neighbour who ranks 31st. It does so for the same reason that grade 1° separates the man who ranks 1st from the man who ranks 2nd. Now, the 30th man failed in the test, and the 31st succeeded. Therefore the grade corresponding to bare success lies between them, and is the same as grade 30°.

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It was moved by Professor FLOWER, seconded by Mr. HYDE CLARKE, and unanimonsly resolved:—

"That the thanks of the meeting be given to the President for his address, and that it be printed in the Journal of the Institute."

The Scrutineers gave in their Report and the following gentlemen were declared to be duly elected to serve as Officers and Council for the year 1889:—

*President.*—John Beddoe, Esq., M.D., F.R.S.

*Vice-Presidents.*—Hyde Clarke, Esq.; J. G. Garson, Esq., M.D.; Prof. A. H. Keane, B.A.

*Secretary.*—F. W. Rudler, Esq., F.G.S.

*Treasurer.*—A. L. Lewis, Esq., F.C.A.

*Council.*—G. M. Atkinson, Esq.; E. W. Brabrook, Esq., F.S.A.; C. H. E. Carmichael, Esq., M.A.; Rev. R. H. Codrington, D.D.; J. F. Collingwood, Esq., F.G.S.; J. G. Frazer, Esq., M.A.; T. V. Holmes, Esq., F.G.S.; H. H. Howorth, Esq., M.P., F.S.A.; Prof. A. Macalister, F.R.S.; R. Biddulph Martin, Esq., M.A.; Prof. Meldola, F.R.S.; Right Hon. the Earl of Northesk, F.S.A.; C. Peek, Esq., M.A.; F. G. H. Price, Esq., F.S.A.; C. H. Read, Esq., F.S.A.; Prof. A. H. Sayce, M.A.; H. Seebohm, Esq., F.L.S.; Oldfield Thomas, Esq., F.Z.S.; M. J. Walhouse, Esq., F.R.A.S.; General Sir C. P. Beauchamp Walker, K.C.B.

A vote of thanks to the retiring Vice-President, the retiring Councillors, the Auditors, the Scrutineers, the Secretary and the Treasurer was moved by Sir BEAUCHAMP WALKER, seconded by Mr. T. V. HOLMES, and carried unanimously.

# ANTHROPOLOGICAL MISCELLANEA.

## Parsee Burial *in* India.

The following account of a Parsee burial in India was given me by an eye witness, and I think may prove of interest to members of the Institute :—

A Parsee having died at a spot too far removed from any "Tower of Silence" to allow of his being conveyed to one, a grave was dug for him close to the sea shore. In this the body was laid at full length in ordinary apparel. Then two men, presumably the nearest relatives of the deceased, tied together by the hands, advanced towards the open grave, one walking to the right of it and the other to the left, till they arrived at the centre of the grave. Then a man advanced and with a knife severed the cord which bound the two. After this, a dog was brought and held over the grave, being made to look at the corpse, and this apparently concluded the ceremony. A. W. Buckland.

## Tables *of* Observations.

By Francis Galton, F.R.S.

The following observations are printed for the use of those who desire to investigate the relations of the various measurements of the same individuals, whether among themselves or in connection with birthplace, occupation, &c. The observations were made at the International Exhibition in 1884, with the same instruments, the same methods, and mostly by the same operator. They refer to male adults of the ages 23–26 and have been tabulated for me by Mr. J. H. Young, of the General Register Office, from the original documents. There were 518 available returns altogether, but I thought it better to limit the publication to the round number of 400 and to take the opportunity thereby afforded of weeding out all foreigners, or persons of abnormal antecedents or occupation, so that the remainder should be as homogeneous a group as circumstances admitted. I may add that the data used in my recent memoir on *Correlation* (Proc. Royal Soc., December, 1888) were entirely different to these. Consequently the present publication will afford useful material for checking the results arrived at in that memoir.

I did not care to enlarge the table by including other measurements that had been made at the same time. As much is printed as the page can conveniently hold, and the omitted measurements seem to be of secondary importance from the present point of view.

| Age last birthday. | Married or unmarried. | Eye Colour. | Birthplace. | Occupation. | Residence. | Breathg. Capacity. cubic inches. | Squeeze in lbs. | | Span. inches. | Height from Seat. inches. | Height without shoes. inches. | Weight.* lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rt. hand. | Left hand. | | | | |
| 23 | Unmarr. | Brown ... | Fulwood, Lancashire ... | Clerk ... ... ... | Suburb ... | 76 | 67 | 64 | 64·7 | 34·0 | 64·0 | 111·5 |
| 23 | Unmarr. | Blue ... .. | Portsmouth, Hants ... | Shipbroker ... ... | Suburb ... | 214 | 91 | 80 | 74·0 | 36·7 | 72·2 | 143·0 |
| 23 | Unmarr. | Dark grey ... | Rochdale, Yorkshire ... | Hatter ... ... ... | Town ... | 240 | 71 | 70 | 68·4 | 34·9 | 66·1 | 125·5 |
| 23 | Unmarr. | Dark grey ... | Newport, Salop ... ... | Schoolmaster ... ... | Suburb ... | 230 | 79 | 76 | 68·0 | 36·6 | 66·6 | 146·0 |
| 23 | Unmarr. | Grey ... .. | Cambridge ... ... ... | Draper's assistant ... | Town ... | 234 | 79 | 77 | 71·7 | 36·8 | 69·8 | 143·5 |
| 23 | Unmarr. | Blue grey ... | Oxford ... ... ... | Messenger ... ... | Town ... | 238 | 87 | 81 | 69·3 | 36·6 | 67·5 | 143·0 |
| 23 | Unmarr. | Dark grey ... | Woolwich, Kent ... ... | Builder ... ... ... | Town ... | 254 | 71 | 64 | 71·8 | 38·3 | 68·7 | 156·25 |
| 23 | Unmarr. | Brown ... | St. Thomas, North Devon | Clerk ... ... ... | Town ... | 278 | 82 | 80 | 67·7 | 36·1 | 67·1 | 147·0 |
| 23 | Unmarr. | Blue ... ... | New Cross, Kent ... ... | Mercantile ... ... | Suburb ... | 300 | 104 | 103 | 71·0 | 37·0 | 71·5 | 179·5 |
| 23 | Unmarr. | Blue ... ... | Paddington, Middlesex .. | Clerk ... ... ... | Town ... | 260 | 87 | 88 | 72·6 | 37·1 | 71·8 | 145·0 |
| 23 | Married | Blue ... ... | Paddington, Middlesex ... | Clerk ... ... ... | Town ... | 252 | 91 | 90 | 72·8 | 37·6 | 71·2 | 143·75 |
| 23 | Unmarr. | Blue grey ... | Ealing, Middlesex .. ... | Clerk ... ... ... | Suburb ... | 230 | 93 | 93 | 70·0 | 35·8 | 68·1 | 177·5 |
| 23 | Unmarr. | Brown grey ... | Knutsford, Cheshire ... | Surgeon ... ... ... | Country ... | 250 | 73 | 82 | 70·3 | 34·8 | 68·3 | 155·5 |
| 23 | Unmarr. | Dark grey ... | Birmingham, Warwickshire | Schoolmaster ... ... | Suburb ... | 164 | 86 | 75 | 68·2 | 35·5 | 67·2 | 142·0 |
| 23 | Unmarr. | Grey ... ... | London ... ... ... | Electrical engineer .. | Suburb ... | 260 | 95 | 91 | 71·3 | 35·5 | 69·0 | 141·5 |
| 23 | Unmarr. | Blue grey ... | Middlesex ... ... .. | Engineer... ... ... | Suburb ... | 270 | 112 | 105 | 68·0 | 41·7 | 79·5 | 203·25 |
| 23 | Unmarr. | Blue grey ... | London ... ... ... | Land agent ... ... | Country ... | 234 | 81 | 67 | 68·8 | 36·5 | 67·3 | 139·0 |
| 23 | Unmarr. | Grey ... ... | Surrey ... ... ... | Barrister ... ... ... | Town ... | 238 | 94 | 81 | 70·2 | 37·0 | 69·3 | 156·5 |
| 23 | Unmarr. | Blue grey ... | Derby ... ... ... | Clerk ... ... ... | Town ... | 238 | 61 | 60 | 66·6 | 33·5 | 64·5 | 118·0 |
| 23 | Unmarr. | Brown ... | Kent ... ... ... ... | Cook ... ... ... | Suburb ... | 208 | 80 | 75 | 69·5 | 35·0 | 67·2 | 127·0 |
| 23 | Unmarr. | Green grey ... | Plymouth, Devonshire ... | Gentleman ... ... | Various ... | 248 | 96 | 72 | 72·8 | 36·2 | 68·3 | 156·0 |
| 23 | Unmarr. | Hazel ... | West Lynn, Norfolk .. | Chemist's assistant .. | Suburb ... | 204 | 78 | 88 | 65·9 | 35·3 | 65·4 | 129·5 |
| 23 | Unmarr. | Grey brown... | Chaddesley, Worcestershire | Chemist and druggist ... | Town .. | 234 | 88 | 87 | 72·0 | 37·1 | 70·7 | 143·25 |
| 23 | Unmarr. | Brown ... | York ... ... ... | Assistant in manufactory | Town ... | 220 | 78 | 70 | 65·5 | 35·4 | 64·0 | 126·75 |
| 23 | Unmarr. | Brown .. | Camberwell, Surrey ... ... | Builder ... ... ... | Town ... | 290 | 91 | 86 | 76·0 | 37·6 | 72·7 | 145·0 |
| 23 | Unmarr. | Grey brown... | London ... ... ... | Student ... ... ... | Country ... | 208 | 90 | 86 | 76·0 | 39·1 | 73·8 | 151·5 |
| 23 | Unmarr. | Grey ... ... | London ... ... ... | Builder ... ... ... | Suburb ... | 278 | 80 | 80 | 77·0 | 38·2 | 72·0 | 164·0 |
| 23 | Unmarr. | Blue ... ... | Derby ... ... ... | Pattern maker ... ... | Country ... | 180 | 68 | 69 | 63·5 | 35·3 | 62·6 | 121·0 |
| 23 | Unmarr. | Brown ... | City of London ... ... | Accountant ... ... | Town ... | 174 | 75 | 64 | 61·25 | 33·3 | 62·3 | 129·0 |
| 23 | Unmarr. | Blue grey ... | Devonshire ... ... ... | Carpenter ... ... | Town ... | 222 | 77 | 77 | 67·75 | 35·2 | 67·8 | 128·25 |
| 23 | Unmarr. | Brown grey... | Westminster, Middlesex ... | Tailor ... ... ... | Town ... | 206 | 72 | 68 | 70·0 | 34·2 | 66·0 | 132·25 |
| 23 | Unmarr. | Brown ... | London, Surrey ... ... | Builder ... ... ... | Town ... | 292 | 86 | 80 | 76·0 | 37·7 | 72·3 | 147·0 |
| 23 | Unmarr. | Blue grey .. | London ... ... ... | Ana'yt. Chem. Teacher | Town ... | 290 | 105 | 95 | 69·5 | 37·2 | 69·6 | 141·75 |
| 23 | Unmarr. | Brown ... | Birkenhead, Cheshire ... | Pawnbroker ... ... | Town ... | 158 | 68 | 49 | 66·2 | 32·6 | 62·1 | 121·0 |
| 23 | Married | Brown ... | Manchester, Lancashire ... | Teacher ... ... ... | ... ... | 234 | 91 | 97 | 71·1 | 37·0 | 67·2 | 141·5 |
| 23 | Unmarr. | Blue ... ... | Boston, Lincolnshire ... | Bank clerk ... ... | Country ... | 270 | 75 | 72 | 71·6 | 35·6 | 67·6 | 146·25 |
| 23 | Unmarr. | Blue ... ... | London ... ... ... | Compositor ... ... | Suburb ... | 210 | 88 | 79 | 69·25 | 36·2 | 66·3 | 143·0 |
| 23 | Unmarr. | Grey ... | Dunstable, Beds ... ... | Carpenter ... ... | Town ... | 212 | 84 | 84 | 73·5 | 36·0 | 68·5 | 148·75 |
| 23 | Unmarr. | Blue ... ... | Sheffield, Yorkshire ... | Architect's assistant ... | Town ... | 206 | 76 | 85 | 66·75 | 35·8 | 65·2 | 123·0 |
| 23 | Unmarr. | Grey ... | Sheffield, Yorkshire ... | Architect's assistant ... | Town ... | 174 | 77 | 77 | 65·0 | 34·8 | 62·9 | 110·5 |

* The weight was taken in ordinary indoor clothing.

| Age last birth day. | Married or unmarried. | Eye Colour. | Birthplace. | Occupation. | Residence. | Breathg. Capacity. cubic inches. | Squeeze in lbs. Rt. hand. | Squeeze in lbs. Left hand. | Span. inches. | Height from Seat. inches. | Height without shoes. inches. | Weight. lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | Unmarr. | Brown ... | Liverpool, Lancashire ... | Tinman ... ... ... | Suburb ... | 218 | 82 | 72 | 66·5 | 35·4 | 65·5 | 122·5 |
| 23 | Unmarr. | Blue .. | Gravesend, Kent ... ... | Carpenter ... ... ... | Town .. | 226 | 78 | 80 | 70·5 | 36·5 | 69·8 | 142·5 |
| 23 | Unmarr. | Blue ... | Bromley, Kent ... ... | Chemist... ... ... ... | Country ... | 198 | 71 | 62 | 67·0 | 34·7 | 65·8 | 125·25 |
| 23 | Unmarr. | Grey blue ... | Dumbarton... ... ... | Clerk ... ... ... | Town ... | 188 | 76 | 75 | 69·5 | 37·1 | 69·2 | 135·25 |
| 23 | Unmarr. | Grey ... | Worcestershire ... ... | Barrister ... ... ... | Town ... | 222 | 71 | 73 | 68·5 | 35·1 | 66·8 | 154·0 |
| 23 | Married | Blue grey .. | London, Surrey ... .. | Tea dealer ... ... ... | Suburb ... | 218 | 78 | 79 | 70·6 | 36·0 | 67·5 | 143·0 |
| 23 | Unmarr. | Brown grey | Wrexham, Denbigh .. | Law clerk ... ... .. | Suburb ... | 172 | 69 | 62 | 65·0 | 34·7 | 65·3 | 127·0 |
| 23 | Unmarr. | Blue ... | Oakham, Rutlandshire ... | Joiner ... ... ... | Suburb ... | 228 | 80 | 75 | 70·7 | 35·7 | 68·2 | 137·5 |
| 23 | Unmarr. | Brown ... | Dowderwell, Gloucester ... | Student ... ... ... | Town . | 280 | 112 | 108 | 70·25 | 38·0 | 69·7 | 161·5 |
| 23 | Unmarr. | Grey ... | London ... ... ... | Tutor ... ... ... | Country ... | 250 | 88 | 77 | 71·5 | 37·4 | 70·1 | 147·0 |
| 23 | Unmarr. | Blue ... | Beddington, Surrey ... | Clerk ... ... ... | Cy. town ... | 182 | 83 | 80 | 68·8 | 34·9 | 66·2 | 131·0 |
| 23 | Unmarr. | Grey brown... | London ... ... ... | Bank clerk ... ... | Country ... | 184 | 71 | 67 | 67·2 | 34·8 | 65·4 | 134·75 |
| 23 | Unmarr. | Blue ... | Hull, Yorkshire ... ... | Clerk ... ... ... | Town ... | 238 | 78 | 72 | 64·2 | 35·3 | 64·6 | 135·25 |
| 23 | Unmarr. | Blue grey ... | Clapham, Surrey ... ... | Medical student ... ... | Suburb ... | 306 | 79 | 75 | 69·5 | 38·0 | 69·7 | 169·25 |
| 23 | Unmarr. | Grey blue ... | Woodford, Essex ... ... | Engineer ... ... .. | Country ... | 318 | 102 | 97 | 72·3 | 36·4 | 69·5 | 172·5 |
| 23 | Unmarr. | Blue ... | London ... ... ... | Sailor ... ... ... | ? ... ... | 184 | 89 | 78 | 66·25 | 36·4 | 63·9 | 145·0 |
| 23 | Unmarr. | Brown ... | Colnbrook, Bucks ... | Teacher ... ... ... | Suburb ... | 220 | 97 | 91 | 66·4 | 35·9 | 68·7 | 135·5 |
| 23 | Married | Hazel brown | Portsmouth, Hants .. | Waiter ... ... .. | Town ... | 206 | 86 | 78 | 70·0 | 34·0 | 66·2 | 142·0 |
| 23 | Unmarr. | Brown ... | London ... ... ... | Accountant ... ... | Town ... | 180 | 76 | 60 | 73·2 | 35·1 | 68·1 | 123·25 |
| 23 | Unmarr. | Blue ... | Wandsworth, Surrey ... | Watchmaker ... ... | Suburb ... | 160 | 70 | 68 | 64·0 | ? | 62·4 | 117·0 |
| 23 | Unmarr. | Grey brown | London ... ... ... | Medical student ... ... | Town ... | 300 | 91 | 90 | 74·7 | 37·5 | 74·0 | 152·5 |
| 23 | Unmarr. | Blue ... | London ... ... ... | Carpenter ... ... ... | Town ... | 210 | 84 | 80 | 65·2 | 35·2 | 65·6 | 134·0 |
| 23 | Unmarr. | Brown grey | Lambeth, Surrey ... ... | Labourer ... ... ... | Town ... | 184 | 56 | 57 | 65·75 | 34·4 | 63·0 | 115·0 |
| 23 | Unmarr. | Blue grey ... | Farringdon, Hants ... | Smith ... ... ... ... | Town ... | 214 | 71 | 77 | 67·5 | 35·2 | 66·7 | 131·25 |
| 23 | Unmarr. | Blue ... | Walworth, Surrey... ... | Carpenter ... ... ... | Suburb ... | 230 | 89 | 80 | 70·1 | 33·9 | 66·5 | 131·0 |
| 24 | Unmarr. | Blue ... | Redhill, Surrey ... ... | Clerk ... ... ... | Town ... | 220 | 95 | 101 | 76·5 | 38·3 | 71·0 | 143·25 |
| 23 | Unmarr. | Blue grey ... | London ... ... ... | Analytical chemist ... | Town ... | 250 | 100 | 99 | 69·5 | 37·0 | 69·2 | 137·0 |
| 23 | Unmarr. | Blue ... | Scotland ... ... ... | Clerk ... ... ... | Town ... | 250 | 84 | 85 | 69·3 | 36·3 | 68·2 | 158·5 |
| 23 | Unmarr. | Blue grey .. | North Devon ... .. | Architect ... ... ... | Country ... | 214 | 68 | 69 | 69·0 | 34·8 | 66·8 | 145·0 |
| 23 | Unmarr. | Grey blue ... | Warminster, Wiltshire ... | Footman ... ... ... | Town ... | 200 | 85 | 83 | 68·2 | 36·0 | 66·5 | 137·5 |
| 23 | Unmarr. | Grey ... | Swindon, Wiltshire ... | Clerk ... ... ... | Suburb ... | 228 | 87 | 93 | 67·8 | 35·5 | 65·6 | 147·75 |
| 23 | Unmarr. | Grey ... | Helston, Cornwall... ... | Tutor ... ... ... | Country ... | 252 | 93 | 90 | 71·6 | 35·7 | 68·9 | 153·0 |
| 23 | Unmarr. | Blue grey ... | Hants ... ... ... | Analytical chemist ... | Town .. | 230 | 85 | 75 | 70·0 | 37·9 | 69·2 | 160·5 |
| 23 | Unmarr. | Blue grey ... | London ... ... ... | — — | Town ... | 237 | 69 | 61 | 70·9 | 36·4 | 69·2 | 136·0 |
| 23 | Unmarr. | Blue grey ... | Bradford, Yorkshire ... | Merchant ... ... ... | Cy. town ... | 248 | 92 | 82 | 71·8 | 36·1 | 69·3 | 158·5 |
| 23 | Unmarr. | Hazel brown | Uppingham, Rutlandshire | Clerk ... ... ... | Town ... | 238 | 89 | 89 | 67·0 | 34·8 | 66·4 | 153·0 |
| 23 | Unmarr. | Grey ... | Devonshire... ... ... | Student ... ... ... | Suburb ... | 298 | 95 | 88 | 70·8 | 36·1 | 67·2 | 146·0 |
| 23 | Unmarr. | Light blue ... | London ... ... ... | Assistant warehouseman | Suburb ... | 238 | 93 | 82 | 70·0 | 36·2 | 68·7 | 141·5 |
| 23 | Unmarr. | Blue ... | London ... ... ... | Gentleman ... ... ... | Town ... | 228 | 81 | 61 | 68·0 | 36·6 | 69·4 | 145·0 |
| 23 | Unmarr. | Brown ... | Westminster, Middlesex ... | Printer's warehouseman | Suburb ... | 190 | 78 | 74 | 65·0 | 35·4 | 64·4 | 148·0 |

| Age last birthday. | Married or unmarried. | Eye Colour. | Birthplace. | Occupation. | Residence. | Breathg. Capacity. cubic inches. | Squeeze in lbs. | | Span. | Height from Seat. | Height. without shoes. | Weight. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rt. hand. | Left hand. | inches. | inches. | inches. | lbs. |
| 23 | Unmarr. | Brown grey.. | Sheffield, Yorkshire ... | Clerk... ... ... ... | Town ... | 200 | 76 | 65 | 64·0 | 35·1 | 59·4 | 109·5 |
| 23 | Unmarr. | Grey blue ... | Hants ... ... ... | Servant ... ... ... | Country ... | 300 | 81 | 75 | 71·4 | 34·1 | 68·7 | 145·75 |
| 23 | Unmarr. | Blue grey ... | London ... ... ... | Barrister ... ... ... | Town ... | 260 | 87 | 78 | 74·5 | 38·3 | 71·2 | 157·25 |
| 23 | Unmarr. | Grey blue ... | Brighton, Sussex ... ... | Provision merchant ... | Town ... | 224 | 95 | 94 | 71·25 | 37·7 | 69·6 | 157·0 |
| 23 | Unmarr. | Grey blue ... | Brentwood, Essex ... ... | Printer ... ... ... | Suburb ... | 222 | 81 | 77 | 71·25 | 36·8 | 69·6 | 142·5 |
| 23 | Unmarr. | Grey ... ... | Bromley, Kent ... ... | Chemist ... ... ... | Town ... | 200 | 70 | 61 | 67·0 | 35·6 | 66·0 | 128·25 |
| 23 | Unmarr. | Grey blue ... | Northampton ... ... | Engineer ... ... ... | Town ... | 200 | 72 | 72 | 68·1 | 35·8 | 68·2 | 134·0 |
| 23 | Unmarr. | Hazel ... | Berwick-on-Tweed ... | Letter carrier ... .. | Town ... | 238 | 85 | 75 | 69·0 | 36·8 | 67·8 | 140·0 |
| 23 | Unmarr. | Brown ... | London ... ... ... | Bank clerk ... ... ... | Town ... | 218 | 103 | 79 | 69·0 | 37·2 | 68·2 | 138·0 |
| 23 | Unmarr. | Blue ... ... | Clapham, Surrey ... ... | Theological student ... | Suburb ... | 230 | 86 | 78 | 66·75 | 34·0 | 65·3 | 139·5 |
| 23 | Unmarr. | Brown .. | Weybridge, Surrey ... | Surgeon ... ... ... | Town ... | 307 | 87 | 88 | 72·5 | 37·1 | 70·3 | 154·0 |
| 23 | Unmarr. | Grey brown... | Petworth, Sussex ... ... | Evangelist ... ... ... | Town ... | 198 | 94 | 83 | 74·2 | 35·6 | 70·0 | 164·5 |
| 23 | Unmarr. | Hazel ... | Chelsea, Middlesex ... | Clerk ... ... ... | Suburb ... | 185 | 74 | 72 | 68·5 | 33·8 | 63·9 | 120·5 |
| 23 | Unmarr. | Blue ... ... | Liverpool, Lancashire ... | Shipowner ... ... ... | Suburb ... | 180 | 74 | 74 | 67·0 | 35·5 | 67·5 | 151·0 |
| 23 | Unmarr. | ? | London ... ... ... | Stationer ... ... ... | Town ... | 184 | 86 | 75 | 72·5 | 35·0 | 71·5 | 152·5 |
| 23 | Unmarr. | Blue ... ... | Keighley, Yorkshire ... | Manufacturer ... ... | Country ... | 178 | 85 | 72 | 64·7 | 34·8 | 64·7 | 130·5 |
| 23 | Unmarr. | Brown grey ... | Edinburgh ... ... ... | Merchant ... ... ... | Town ... | 220 | 95 | 81 | 69·5 | 34·0 | 68·2 | 153·25 |
| 23 | Unmarr. | Grey blue ... | London ... ... ... | Solicitor ... ... ... | Town ... | 278 | 98 | 95 | 70·5 | 36·2 | 68·0 | 158·0 |
| 23 | Unmarr. | — | London ... ... ... | Curator (museum) ... | Town ... | 210 | 85 | 80 | 69·25 | 36·3 | 67·0 | 143·0 |
| 23 | Unmarr. | Blue ... ... | London ... ... ... | Clerk ... ... ... | Suburb ... | 218 | 88 | 82 | 65·7 | 34·7 | 70·8 | 154·0 |
| 23 | Unmarr. | Dark blue ... | London ... ... ... | Clerk... ... ... ... | Town ... | 290 | 95 | 94 | 70·5 | 36·8 | 69·3 | 138·75 |
| 23 | Unmarr. | — | Gravesend, Kent ... ... | Clerk... ... ... ... | Suburb ... | 168 | 81 | 81 | 66·5 | 36·0 | 62·75 | 129·5 |
| 23 | Unmarr. | Grey blue ... | Edinburgh ... ... ... | M.B. ... ... ... ... | Town ... | 270 | 83 | 87 | 70·5 | 36·7 | 68·1 | 139·25 |
| 23 | Unmarr. | Blue grey ... | Kensington, Middlesex ... | Civil Service ... ... | Suburb | 180 | 80 | 80 | 68·5 | 35·0 | 67·0 | 187·0 |
| 23 | Unmarr. | Blue ... ... | Melton, Yorkshire... ... | Clerk... ... ... ... | Suburb ... | 130 | 45 | 65 | 65·0 | 33·6 | 62·0 | 131·5 |
| 23 | Unmarr. | Brown ... | Manchester, Lancashire ... | Engineer ... ... ... | Suburb ... | 180 | 85 | 84 | 67·5 | 34·9 | 65·2 | 124·0 |
| 23 | Unmarr. | Brown ... | Camden Town, Middlesex | Clerk ... ... ... | Suburb ... | 170 | 79 | 82 | 65·5 | 33·6 | 64·25 | 115·0 |
| 23 | Unmarr. | Lt. blue grey | Enfield, Middlesex... ... | Clerk... ... ... ... | Suburb ... | 184 | 89 | 85 | 67·5 | 34·75 | 67·0 | 140·0 |
| 23 | Unmarr. | Dark blue ... | Sydenham, Kent ... ... | Clerk... ... ... ... | Country ... | 226 | 82 | 83 | 73·25 | 36·0 | 68·75 | 151·5 |
| 23 | Unmarr. | Brown grey... | Dublin ... ... ... | Physician ... ... ... | Town ... | 286 | 80 | 81 | 74·5 | 35·8 | 72·5 | 152·0 |
| 23 | Unmarr. | Dark blue ... | Dublin ... ... ... | Clerk ... ... ... | Suburb ... | 219 | 82 | 82 | 67·0 | 33·5 | 64·0 | 119·0 |
| 23 | Unmarr. | Brown ... | Hythe, Kent ... ... | Civil Service clerk... ... | Suburb ... | 184 | 85 | 90 | 68·0 | 36·7 | 68·1 | 139·5 |
| 23 | Unmarr. | Grey blue ... | Edmonton, Middlesex ... | Lecturer ... ... ... | Country ... | 244 | 73 | 74 | 68·0 | 35·5 | 67·2 | 141·0 |
| 23 | Married | Blue grey ... | Tooting, Surrey ... ... | Grocer ... ... ... | Suburb ... | 118 | 81 | 88 | 70·5 | 34·5 | 66·0 | 142·25 |
| 23 | Unmrrr. | Lt. bwn. grey | Hastings, Sussex ... ... | Civil Service ... ... | Suburb ... | 208 | 75 | 72 | 67·3 | 34·9 | 66·0 | 127·5 |
| 23 | Unmarr. | Brown ... | Manchester ... ... ... | Joiner ... ... ... | Suburb ... | 240 | 81 | 85 | 70·5 | 36·7 | 67·0 | 139·25 |
| 23 | Unmarr. | Grey ... ... | Smethcote, Salop ... ... | Civil engineer ... ... | Country ... | 196 | 90 | 83 | 76·75 | 35·7 | 71·8 | 145·5 |
| 23 | Unmarr. | Blue ... ... | City ... ... ... ... | Clerk... ... ... ... | Suburb ... | 190 | 76 | 71 | 70·0 | 35·2 | 67·2 | 135·0 |
| 23 | Unmarr. | Brown ... | Manchester, Lancashire ... | India rubber manufacturer | Town ... | 216 | 96 | 78 | 70·0 | 36·8 | 68·3 | 130·0 |
| 23 | Unmarr. | Blue ... ... | Aylesbury, Bucks ... | Draper's shopman... ... | Country ... | 196 | 84 | 87 | 64·3 | 34·3 | 64·4 | 124·5 |

| Age last birthday. | Married or unmarried. | Eye Colour. | Birthplace. | Occupation. | Residence. | Breathg. Capacity. cubic inches. | Squeeze in lbs. Rt. hand. | Squeeze in lbs. Left hand. | Span. inches. | Height from Seat. inches. | Height without shoes. inches. | Weight. lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | Unmarr. | Grey blue ... | Wakefield, Yorkshire ... | Clerk ... ... ... | Town ... | 218 | 99 | 93 | 72·0 | 36·3 | 71·3 | 154·25 |
| 23 | Unmarr. | Brown grey... | Brighton, Sussex ... ... | Engineer ... ... ... | Country ... | 220 | 100 | 99 | 71·2 | 39·2 | 71·6 | 145·25 |
| 23 | Unmarr. | Blue ... ... | London... ... ... ... | Chemist ... ... ... | Suburb ... | 208 | 87 | 96 | 68·3 | 36·0 | 67·7 | 149·25 |
| 23 | Unmarr. | Grey blue ... | Reading, Berkshire ... ... | Chemist ... ... ... | Town ... | 242 | 87 | 87 | 69·5 | 35·2 | 66·3 | 131·75 |
| 23 | Unmarr. | Grey ... ... | Cambridge ... ... ... | Butler ... ... ... | Town ... | 202 | 76 | 74 | 70·0 | 35·0 | 66·5 | 113·0 |
| 23 | Unmarr. | Blue ... ... | Bucks ... ... ... ... | Civil engineer ... .. | Cy. town ... | 270 | 80 | 86 | 68·5 | 36·8 | 70·0 | 147·25 |
| 23 | Unmarr. | Grey blue ... | London... ... ... ... | Auctioneer ... ... ... | Town ... | 290 | 95 | 91 | 75·0 | 36·9 | 72·3 | 164·0 |
| 23 | Unmarr. | Grey ... ... | Mile End, Middlesex... | Librarian ... ... ... | Town ... | 218 | 89 | 85 | 71·5 | 35·3 | 66·7 | 144·0 |
| 23 | Unmarr. | Light brown | Norwich ... ... ... | Teacher ... ... ... | Suburb ... | 208 | 81 | 81 | 63·9 | 35·4 | 62·5 | 120·75 |
| 23 | Unmarr. | Brown ... | Pewsey, Wiltshire ... ... | Accountant ... ... | Town ... | 172 | 68 | 71 | 68·0 | 36·8 | 69·0 | 131·5 |
| 23 | Unmarr. | Hazel ... ... | Plymouth, Devonshire ... | H. M. dockyard ... ... | Town ... | 208 | 74 | 71 | 69·5 | 36·0 | 67·4 | 132·5 |
| 23 | Unmarr. | Brown ... .. | Limerick ... ... ... | Clerk ... ... ... | Town ... | 198 | 70 | 65 | 66·5 | 36·0 | 66·0 | 126·5 |
| 23 | Unmarr. | Brown grey... | St. Mary Cray, Kent ... | Teacher ... ... ... | Town ... | 228 | 99 | 95 | 71·4 | 38·3 | 68·8 | 148·5 |
| 23 | Unmarr. | Brown grey... | Bealings, Suffolk ... ... | Schoolmaster ... ... | Country ... | 220 | 89 | 88 | 69·5 | 35·1 | 67·5 | 137·5 |
| 23 | Unmarr. | Brown grey... | Durham ... ... ... | Clerk ... ... ... | Town ... | 220 | 77 | 87 | 73·0 | 37·0 | 70·75 | 153·5 |
| 23 | Unmarr. | Blue ... ... | Turnworth, Dorset ... ... | — — | Town .. | 186 | 71 | 61 | 69·5 | 36·75 | 69·2 | 141·5 |
| 23 | Married | Grey ... ... | London... ... ... ... | Clerk ... ... ... | Suburb ... | 220 | 98 | 92 | 74·5 | 39·3 | 69·8 | 236·0 |
| 23 | Married | Grey brown | London... ... ... ... | Clerk ... ... ... | Country ... | 190 | 76 | 83 | 69·0 | 35·0 | 66·5 | 132·5 |
| 23 | Unmarr. | Grey ... ... | London... ... ... ... | Surveyor ... ... ... | Country ... | 220 | 85 | 83 | 72·0 | 36·4 | 68·3 | 149·0 |
| 23 | Unmarr. | Grey brown... | Scarborough, Yorkshire .. | Chemist ... ... ... | Town .. | 218 | 68 | 82 | 69·5 | 35·8 | 67·6 | 142·0 |
| 23 | Unmarr. | Brown grey... | Portsmouth, Hants ... ... | Clerk ... ... ... | Suburb ... | 229 | 79 | 74 | 72·5 | 35·2 | 69·5 | 132·0 |
| 23 | Unmarr. | Grey ... ... | Liverpool, Lancashire ... | Chemist ... ... ... | Town ... | 236 | 84 | 94 | 67·25 | 34·8 | 65·0 | 138·5 |
| 23 | Unmarr. | Grey green ... | Huntingdon... ... ... | Clerk ... ... ... | Town ... | 186 | 63 | 49 | 69·0 | 37·7 | 70·5 | 145·25 |
| 23 | Unmarr. | Brown ... | Bury St. Edmunds, Suffolk... | Mechanical engineer | Town ... | 188 | 74 | 77 | 69·9 | 36·0 | 68·4 | 138·5 |
| 24 | Unmarr. | Brown grey... | Birmingham, Warwickshire | Letter carrier ... ... | Town ... | 200 | 76 | 83 | 63·25 | 34·6 | 64·0 | 143·0 |
| 24 | Unmarr. | Grey ... ... | Walsall, Staffordshire ... | Saddle-tree maker... ... | Suburb ... | 164 | 72 | 66 | 67·8 | 34·3 | 65·3 | 133·5 |
| 24 | Unmarr. | Grey ... ... | Wakefield, Yorkshire ... | Schoolmaster ... ... | Country ... | 230 | 63 | 71 | 71·0 | 37·5 | 70·2 | 122·0 |
| 24 | Unmarr. | Blue grey ... | London... ... ... ... | Scientific chemist ... ... | Suburb ... | 246 | 80 | 72 | 69·5 | 34·8 | 66·7 | 136·0 |
| 24 | Unmarr. | Grey blue ... | London... ... ... ... | Soldier ... ... ... | Town & cy. | 234 | 78 | 95 | 74·9 | 37·2 | 72·0 | 150·0 |
| 24 | Married | Grey brown... | Nottingham ... ... ... | Plasterer ... ... ... | Suburb ... | 222 | 75 | 73 | 73·3 | 37·5 | 71·8 | 165·5 |
| 24 | Unmarr. | Grey brown... | London... ... ... ... | Electrical engineer ... | Suburb ... | 314 | 90 | 98 | 76·0 | 38·7 | 72·9 | 162·5 |
| 24 | Unmarr. | Grey brown... | London... ... ... ... | Stock Exchange ... ... | Suburb ... | 254 | 85 | 86 | 65·2 | 36·0 | 65·1 | 137·75 |
| 24 | Unmarr. | Brown grey... | Hoxton, Middlesex ... ... | Printer ... ... ... | Town ... | 242 | 78 | 70 | 70·25 | 37·1 | 68·4 | 138·0 |
| 24 | Unmarr. | Blue grey ... | Newmarket, Cambridgeshire | Outfitter ... ... ... | Town ... | 250 | 92 | 94 | 72·5 | 38·6 | 69·4 | 137·0 |
| 24 | Unmarr. | Light blue ... | Portsmouth, Hants. ... ... | Clerk ... ... ... | Suburb ... | 220 | 87 | 74 | 64·75 | 35·6 | 64·0 | 122·0 |
| 24 | Unmarr. | Grey blue ... | Eltham, Kent... ... ... | Drapers' buyer ... ... | Town ... | 164 | 67 | 66 | 64·8 | 35·2 | 65·6 | 116·5 |
| 24 | Unmarr. | Blue grey ... | London... ... ... ... | Clerk ... ... ... | Town ... | 268 | 86 | 80 | 69·7 | 37·5 | 70·7 | 204·75 |
| 24 | Unmarr. | Brown ... | Winterton, Lincolnshire ... | Minister, Congregational | Suburb ... | 254 | 90 | 96 | 68·25 | 37·1 | 67·6 | 154·25 |
| 24 | Unmarr. | Blue ... ... | Brighton, Sussex ... ... | Builder ... ... ... | Town ... | 196 | 88 | 84 | 68·5 | 36·0 | 67·2 | 123·0 |
| 24 | Unmarr. | Grey blue ... | Wakefield, Yorkshire ... | Bar student... ... ... | Town ... | 298 | 80 | 67 | 72·1 | 38·0 | 70·2 | 149·25 |

| Age last birthday. | Married or unmarried. | Eye Colour. | Birthplace. | Occupation. | Residence. | Breathg. Capacity. cubic inches. | Squeeze in lbs. | | Span. | Height from Seat. | Height without shoes. | Weight. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rt. hand. | Left hand. | inches. | inches. | inches. | lbs. |
| 24 | Unmarr. | Brown ... | London... ... ... ... | Mercantile ... ... | Town ... | 274 | 100 | 97 | 73·5 | 37·4 | 69·7 | 159·0 |
| 24 | Unmarr. | Blue ... ... | Windsor, Berkshire ... .. | Professor of music ... | Country ... | 240 | 93 | 90 | 67·75 | 36·1 | 65·4 | 183·5 |
| 24 | Unmarr. | Blue ... ... | Portwinkle, Cornwall ... | Cashier ... ... ... | Town ... | 180 | 67 | 66 | 65·0 | 34·7 | 67·2 | 122·5 |
| 24 | Unmarr. | Brown ... | London... ... ... ... | Architect... ... ... | Town ... | 228 | 84 | 84 | 69·3 | 34·9 | 67·6 | 141·5 |
| 24 | Unmarr. | Blue ... ... | Aberdare, Glamorganshire... | Assistant iron merchant | Town ... | 186 | 82 | 81 | 72·0 | 36·0 | 68·0 | 139·0 |
| 24 | Unmarr. | Brown grey... | Sydenham, Kent ... ... | Student ... ... ... | Suburb ... | 250 | 99 | 97 | 73·0 | 36·7 | 72·0 | 152·75 |
| 24 | Unmarr. | Brown ... | Middlesex ... ... ... | Engineer... ... ... | Suburb ... | 302 | 92 | 95 | 72·8 | 38·1 | 71·6 | 170·75 |
| 24 | Unmarr. | Brown grey... | Kensington, Middlesex ... | Clerk ... ... ... | Suburb ... | 218 | 69 | 75 | 68·6 | 36·2 | 68·6 | 119·0 |
| 24 | Unmarr | Brown ... | Manchester, Lancashire .. | Clerk ... ... ... | Suburb ... | 204 | 64 | 70 | 64·0 | 35·4 | 64·3 | 126·5 |
| 24 | Unmarr. | Grey ... ... | London... ... ... ... | Commercial clerk ... | Suburb ... | 224 | 75 | 73 | 68·2 | 34·5 | 66·7 | 131·75 |
| 24 | Unmarr. | Blue grey ... | London ... ... ... | Clerk ... ... ... | Suburb ... | 250 | 96 | 97 | 73·0 | 36·0 | 69·5 | 150·5 |
| 24 | Unmarr. | Brown ... | London ... ... ... | Electrician ... ... | Suburb ... | 309 | 76 | 76 | 71·7 | 35·5 | 70·2 | 146·0 |
| 24 | Unmarr. | Blue grey ... | Bolton, Lancashire ... ... | Electrician ... ... | Town ... | 246 | 85 | 90 | 72·7 | 37·8 | 71·4 | 143·0 |
| 24 | Unmarr. | Brown ... | Leeds, Yorkshire ... ... | Surgeon ... ... ... | Town ... | 228 | 79 | 68 | 72·5 | 36·5 | 71·0 | 129·75 |
| 24 | Unmarr. | Hazel ... | London ... ... ... | Civil engineer ... ... | Suburb ... | 192 | 96 | 88 | 67·0 | 34·8 | 65·0 | 140·75 |
| 24 | Unmarr. | Blue ... ... | London ... ... ... | Clerk ... ... .. | Country ... | 340 | 101 | 101 | 74·0 | 38·0 | 72·6 | 186·75 |
| 24 | Unmarr. | — | Devizes, Wiltshire ... ... | Draper ... ... ... | Cy. town ... | 230 | 76 | 76 | 69·1 | 35·0 | 67·0 | 119·0 |
| 24 | Unmarr. | Blue grey .. | London ... ... .. | Barrister... ... .. | Town ... | 258 | 101 | 93 | 71·8 | 37·3 | 71·2 | 167·0 |
| 24 | Unmarr. | Brown .. | Liverpool, Lancashire ... | Government clerk ... | Town ... | 250 | 76 | 82 | 64·5 | 34·3 | 64·9 | 126·0 |
| 24 | Unmarr. | Grey ... ... | Gainsborough, Lincolnshire | Clergyman ... ... | Town ... | 208 | 108 | 104 | 65·9 | 37·4 | 67·8 | 145·25 |
| 24 | Unmarr. | Blue ... ... | Sheffield, Yorkshire ... ... | Steel manufacturer ... | Town ... | 204 | 60 | 61 | 70·5 | 36·7 | 65·8 | 130·5 |
| 24 | Unmarr. | Brown grey... | Leeds, Yorkshire ... .. | Architect... ... ... | Country ... | 228 | 64 | 63 | 65·0 | 35·0 | 65·6 | 131·0 |
| 24 | Unmarr | Grey .. ... | Farnham, Surrey ... ... | Wine merchant ... ... | Town ... | 224 | 88 | 95 | 72·5 | 36·9 | 70·2 | 176·0 |
| 24 | Unmarr. | Grey ... ... | Chatteris, Cambridgeshire... | Professor of music ... | Town ... | 280 | 79 | 72 | 72·8 | 36·3 | 69·5 | 140·25 |
| 24 | Unmarr. | Brown ... | Boston, Lincolnshire ... | Solicitors' clerk ... ... | Town ... | 236 | 81 | 70 | 70·5 | 36·2 | 69·2 | 151·75 |
| 24 | Unmarr. | Blue ... ... | London ... ... .. | Shipping agent ... ... | Suburb ... | 204 | 82 | 78 | 66·5 | 34·1 | 64·6 | 126·0 |
| 24 | Unmarr. | Light brown | Mile End, Middlesex... ... | Schoolmaster ... ... | Country ... | 266 | 74 | 70 | 72·4 | 37·7 | 71·4 | 152·5 |
| 24 | Unmarr. | Grey blue .. | London ... ... ... | Clerk ... ... .. | Suburb ... | 221 | 66 | 45 | 69·0 | 36·1 | 66·5 | 139·25 |
| 24 | Unmarr. | Grey blue ... | Sydenham, Kent ... ... | Schoolmaster ... ... | Country ... | 226 | 76 | 77 | 67·8 | 35·3 | 66·3 | 127·5 |
| 24 | Unmarr. | Blue grey ... | Huddersfield, Yorkshire ... | Schoolmaster ... ... | Town ... | 254 | 90 | 87 | 69·5 | 36·4 | 67·3 | 150·5 |
| 24 | Unmarr. | Hazel ... | Tovil, Kent ... ... ... | Postal telegraph clerk ... | Suburb ... | 200 | 73 | 79 | 65·25 | 35·2 | 64·4 | 133·5 |
| 24 | Unmarr. | Brown ... | Peckham, Surrey ... ... | Missionary ... ... | Town ... | 212 | 83 | 78 | 65·0 | 35·4 | 62·6 | 138·0 |
| 24 | Unmarr. | Hazel ... | Paddington, Middlesex .. | Chemist ... ... ... | Town ... | 226 | 74 | 70 | 71·3 | 35·7 | 68·6 | 139·0 |
| 24 | Unmarr. | Grey ... ... | London ... ... ... | Goldsmith ... ... | Suburb ... | 230 | 97 | 99 | 70·75 | 35·2 | 69·9 | 139·5 |
| 24 | Unmarr. | Blue .. ... | Lincolnshire ... ... .. | Teacher... ... ... | Suburb ... | 200 | 75 | 76 | 65·2 | 35·7 | 66·4 | 127·0 |
| 24 | Unmarr. | Blue ... ... | Workington, Cumberland ... | Analyst... ... ... | Town ... | 250 | 85 | 72 | 67·0 | 36·3 | 67·0 | 137·5 |
| 24 | Unmarr. | Blue ... ... | Hingham, Norfolk ... .. | Clerk General Post Office | Town ... | 280 | 87 | 100 | 74·5 | 38·4 | 72·4 | 172·5 |
| 24 | Unmarr. | Blue ... ... | Elton, Lancashire ... ... | Clerk ... ... ... | Town ... | 216 | 84 | 78 | 71·7 | 34·6 | 67·7 | 153·5 |
| 24 | Unmarr. | Blue ... ... | Bristol, Gloucestershire ... | Builder ... ... ... | Town ... | 230 | 106 | 101 | 69·6 | 36·1 | 68·6 | 164·0 |
| 24 | Unmarr. | Blue ... ... | Gloucester ... ... ... | Clerk ... ... ... | Town ... | 216 | 84 | 78 | 70·5 | 35·8 | 69·0 | 140·5 |

| Age last birth-day. | Married or un-married. | Eye Colour. | Birthplace. | Occupation. | Residence. | Breathg. Capacity. cubic inches. | Squeeze in lbs. | | Span. inches. | Height from Seat. inches. | Height without shoes. inches. | Weight. lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rt. hand. | Left hand. | | | | |
| 24 | Unmarr. | Blue grey ... | Croydon, Surrey ... ... | Law clerk ... ... | Town ... | 290 | 90 | 91 | 75·8 | 37·9 | 74·1 | 170·0 |
| 24 | Unmarr. | Hazel ... | Croydon, Surrey ... ... | Traveller ... ... ... | Suburb ... | 186 | 68 | 64 | 67·1 | 34·8 | 65·6 | 126·5 |
| 24 | Unmarr. | Grey blue ... | Hayden, Herts ... ... | Nil... ... ... ... | Town ... | 180 | 82 | 71 | 68·5 | 35·3 | 68·4 | 150·0 |
| 24 | Unmarr. | Grey ... ... | Clapham, Surrey ... ... | Draughtsman ... ... | Suburb ... | 244 | 83 | 80 | 75·5 | 37·0 | 73·7 | 154·0 |
| 24 | Unmarr. | Grey ... ... | London... ... ... ... | Commercial ... ... | Town &sub. | 288 | 92 | 95 | 73·0 | 36·8 | 70·6 | 173·25 |
| 24 | Unmarr. | Blue ... ... | Halifax, Yorkshire ... ... | Civil Service clerk ... | Town .. | 216 | 69 | 61 | 68·3 | 24·4 | 68·6 | 133·25 |
| 24 | Unmarr. | Brown grey... | Glasgow ... ... ... | Teacher ... ... ... | Country ... | 280 | 96 | 90 | 72·25 | 36·2 | 69·7 | 168·25 |
| 24 | Unmarr. | Grey ... ... | Buckingham... ... ... | Stone carver ... ... | Country ... | 184 | 87 | 81 | 66·5 | 32·9 | 61·0 | 133·5 |
| 24 | Unmarr. | Hazel brown | Bristol, Gloucestershire ... | Clerk ... ... ... | Town ... | 178 | 76 | 74 | 67·3 | 34·3 | 65·0 | 137·5 |
| 24 | Unmarr. | Brown grey... | Bristol, Gloucestershire ... | Engineer's assistant ... | Town ... | 246 | 95 | 96 | 73·25 | 36·5 | 69·2 | 152·25 |
| 24 | Unmarr. | Grey ... ... | London... ... ... ... | Clerk ... ... ... | Suburb ... | 218 | 76 | 67 | 67·5 | 35·2 | 67·3 | 134·25 |
| 24 | Unmarr. | Brown grey... | London... ... ... ... | Commercial clerk ... | Suburb ... | 210 | 99 | 94 | 71·5 | 36·8 | 68·0 | 145·0 |
| 24 | Unmarr. | Brown ... | London... ... ... ... | Clerk ... ... ... | Suburb ... | 240 | 88 | 88 | 73·0 | 34·9 | 68·4 | 141·0 |
| 24 | Unmarr. | Brown ... | London... ... ... ... | Surgeon ... ... .. | Town .. | 266 | 89 | 81 | 67·3 | 35·4 | 64·3 | 144·25 |
| 24 | Unmarr. | Blue grey ... | Warwickshire... ... ... | Engineer ... ... .. | Town ... | 258 | 105 | 104 | 71·25 | 35·3 | 69·3 | 139·5 |
| 24 | Unmarr. | Grey ... ... | London... ... ... ... | Minister ... ... ... | Country ... | 276 | 84 | 88 | 72·0 | 35·9 | 69·5 | 143·5 |
| 24 | Unmarr. | Brown grey... | Bro. Ferry, Scotland ... | Manufacturer ... ... | Country ... | 200 | 75 | 84 | 69·25 | 35·7 | 66·2 | 139·5 |
| 24 | Unmarr. | Grey ... ... | London... ... ... ... | Clerk ... ... ... | Town .. | 212 | 79 | 74 | 68·4 | 34·9 | 66·2 | 126·0 |
| 24 | Unmarr. | Grey ... ... | Ipswich, Suffolk ... ... | Merchant clerk... ... | Town ... | 196 | 83 | 75 | 64·5 | 34·3 | 65·5 | 118·0 |
| 24 | Unmarr. | Grey ... ... | London... ... ... ... | Clerk ... ... ... | Suburb ... | 238 | 95 | 88 | 73·0 | 35·4 | 69·5 | 150·0 |
| 24 | Unmarr. | Brown ... | London... ... ... ... | Clerk ... ... ... | Town ... | 184 | 89 | 101 | 74·0 | 36·1 | 70·4 | 180·25 |
| 24 | Unmarr. | Blue grey ... | London... ... ... ... | Engineer ... ... | Suburb ... | 240 | 90 | 92 | 70·5 | 38·0 | 70·2 | 151·75 |
| 24 | Unmarr. | Brown ... | Lambeth, Surrey ... ... | Hatter ... ... ... | Country ... | 154 | 71 | 71 | 67·0 | 36·3 | 66·4 | 141·0 |
| 24 | Unmarr. | Blue grey ... | Gainsborough, Lincolnshire | Clergyman ... ... | Country ... | 216 | 104 | 106 | 65·0 | 36·3 | 67·5 | 147·0 |
| 24 | Unmarr. | Grey blue ... | Cromer, Norfolk ... ... | Clergyman ... ... | Country ... | 210 | 101 | 89 | 72·0 | 36·6 | 68·7 | 154·0 |
| 24 | Unmarr. | Blue ... ... | Llandovery,Carmarthenshire | Teacher ... ... ... | Town ... | 182 | 65 | 74 | 65·25 | 33·9 | 64·8 | 121·5 |
| 24 | Unmarr. | Grey ... ... | St. Mary Cray, Kent... ... | Clerk ... ... ... | Country ... | 210 | 92 | 93 | 70·7 | 36·4 | 68·8 | 145·0 |
| 24 | Unmarr. | Brown ... | Doncaster, Yorkshire ... | Manufacturer ... .. | Suburb ... | 232 | 84 | 85 | 70·5 | 37·2 | 68·5 | 149·5 |
| 24 | Unmarr. | Blue ... ... | London... ... ... ... | Engineer... ... ... | Town ... | 224 | 100 | 92 | 68·7 | 34·9 | 67·2 | 137·25 |
| 24 | Unmarr. | Grey ... ... | Southampton ... ... ... | Examiner of Patents ... | Suburb ... | 170 | 80 | 70 | 65·25 | 35·7 | 65·1 | 140·25 |
| 24 | Unmarr. | Blue ... ... | London... ... ... ... | Artist ... ... ... | Town .. | 266 | 76 | 77 | 73·0 | 38·7 | 72·2 | 141·5 |
| 24 | Unmarr. | Blue ... ... | Hexham, Northumberland... | Law student ... ... | Town . .. | 198 | 83 | 81 | 70·5 | 34·2 | 66·7 | 122·0 |
| 24 | Unmarr. | Grey ... ... | London... ... ... ... | Clerk ... ... ... | Town ... | 208 | 93 | 77 | 68·25 | 37·0 | 68·4 | 158·5 |
| 24 | Unmarr. | Grey ... ... | Huddersfield, Yorkshire ... | Insurance clerk ... ... | Town .. | 280 | 73 | 78 | 73·0 | 36·8 | 71·2 | 138·0 |
| 24 | Unmarr. | Brown ... | Reading, Berkshire ... ... | Woollen warehouseman | Suburb ... | 282 | 87 | 86 | 72·5 | 38·2 | 73·1 | 157·5 |
| 24 | Unmarr. | Blue grey ... | Leicestershire... ... ... | Teacher ... ... .. | Town ... | 288 | 103 | 104 | 73·0 | 38·2 | 73·25 | 163·0 |
| 24 | Unmarr. | Blue ... ... | Tranmere, Lancashire ... | Manufacturer ... ... | Country ... | 244 | 91 | 90 | 70·0 | 36·5 | 68·4 | 154·5 |
| 24 | Unmarr. | Grey blue ... | Manchester, Lancashire ... | Dentist ... ... ... | Suburb ... | 210 | 94 | 79 | 67·0 | 33·9 | 65·7 | 128·0 |
| 24 | Unmarr. | Brown ... | London... ... ... ... | Mercantile ... ... | Town ... | 158 | 80 | 75 | 64·5 | 33·5 | 63·25 | 122·5 |
| 24 | Unmarr. | Brown grey... | Renfrew, Scotland ... ... | Marine engineer ... | Sea ... | 198 | 104 | 102 | 73·5 | 35·8 | 67·2 | 154·0 |

| Age last birthday. | Married or unmarried. | Eye Colour. | Birthplace. | Occupation. | Residence. | Breathg. Capacity cubic inches. | Squeeze in lbs. Rt. hand. | Squeeze in lbs. Left hand. | Span. inches. | Height from Seat. inches. | Height without shoes. inches. | Weight. lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | Unmarr. | Blue grey ... | London... ... ... .. | Civil engineer ... ... | Town ... | 220 | 95 | 94 | 72·5 | 35·75 | 68·75 | 154·0 |
| 24 | Unmarr. | Light grey ... | Kensington, Middlesex ... | Clerk ... ... ... | ? ... ... | 164 | 74 | 75 | 66·5 | 34·8 | 67·0 | 131·0 |
| 24 | Unmarr. | Brown grey... | Wing, Buckinghamshire ... | Law student ... ... | Suburb ... | 152 | 103 | 100 | 72·0 | 36·7 | 69·7 | 152·75 |
| 24 | Unmarr. | Blue grey ... | London... ... ... ... | Clerk ... ... .. | Suburb ... | 206 | 90 | 77 | 69·5 | 38·0 | 70·6 | 206·75 |
| 24 | Unmarr. | Brown ... | Mersham, Kent ... ... | Grocer ... ... .. | Country ... | 140 | 77 | 72 | 68·5 | 34·3 | 65·3 | 124·5 |
| 24 | Unmarr. | Blue ... ... | Penzance, Cornwall... ... | Secretary... ... .. | Town ... | 236 | 100 | 98 | 68·3 | 36·3 | 68·3 | 145·0 |
| 24 | Unmarr. | Blue ... ... | Maidstone, Kent ... ... | Clerk ... ... ... | Town ... | 183 | 76 | 79 | 72·75 | 35·6 | 68·9 | 133·0 |
| 24 | Unmarr. | Grey ... ... | Hemel Hempstead, Herts ... | Compositor ... .. | Country ... | 184 | 78 | 79 | 67·9 | 35·0 | 66·1 | 123·5 |
| 24 | Unmarr. | Blue grey ... | Bath, Somerset ... ... | Silversmith .. ... | Suburb ... | 260 | 90 | 82 | 72·0 | 35·6 | 69·5 | 160·0 |
| 24 | Unmarr. | Brown ... | City ... ... ... ... | Butterman .. ... | Town ... | 170 | 78 | 83 | 67·0 | 33·2 | 63·2 | 143·75 |
| 24 | Unmarr. | Grey ... ... | London... ... ... ... | Draughtsman ... .. | Town ... | 184 | 61 | 59 | 68·75 | 35·4 | 66·8 | 131·0 |
| 24 | Unmarr. | Blue grey ... | Romsey, Hants .. ... | Medical Student... .. | Town ... | 222 | 98 | 83 | 75·5 | 37·1 | 71·6 | 151·5 |
| 24 | Unmarr. | — | Birmingham, Warwickshire | Clerk ... ... ... | Town ... | 224 | 82 | 72 | 71·2 | 36·4 | 68·2 | 130·5 |
| 24 | Unmarr. | Brown ... | Montgomery ... ... ... | Architect... ... ... | Country ... | 175 | 94 | 99 | 70·9 | 35·1 | 68·8 | 145·75 |
| 24 | Unmarr. | Dark brown | Devon... ... ... ... | Saddler ... .. ... | Town ... | 258 | 94 | 89 | 71·6 | 36·8 | 68·4 | 147·0 |
| 24 | Unmarr. | Brown ... | Tooting, Surrey ... ... | Brewer ... ... ... | Country ... | 248 | 87 | 87 | 73·25 | 37·0 | 69·3 | 167·0 |
| 24 | Unmarr. | Brown ... | Southwick, Sussex ... ... | Grocer ... ... .. | Country ... | 216 | 84 | 76 | 67·7 | 32·6 | 63·5 | 140·0 |
| 24 | Unmarr. | Green grey ... | Walton, Northamptonshire | Clerk . .. ... | Town ... | 298 | 88 | 86 | 70·0 | 35·2 | 69·7 | 148·0 |
| 24 | Unmarr. | Brown grey... | Lincoln... ... ... ... | Engineer ... ... .. | Town .. | 246 | 90 | 84 | 68·8 | 35·8 | 67·9 | 142·0 |
| 24 | Unmarr. | Brown ... | Enfield, Middlesex ... ... | Pawnbroker ... ... | Suburb ... | 230 | 82 | 75 | 69·4 | 35·7 | 66·6 | 134·5 |
| 24 | Unmarr. | Dark grey ... | Nettlebed, Oxfordshire .. | Manager of pottery .. | Country .. | 224 | 75 | 78 | 70·6 | 33·4 | 65·8 | 128·0 |
| 24 | Unmarr. | Brown grey... | Portsmouth, Hants ... ... | Clerk ... ... ... | Suburb ... | 196 | 78 | 79 | 66·0 | 33·3 | 63·3 | 120·0 |
| 24 | Married | Brown ... | Stepney, Middlesex ... ... | Traveller ... .. ... | Suburb ... | 228 | 83 | 81 | 70·7 | 35·3 | 68·0 | 142·75 |
| 24 | Married | Brown ... | Lincoln... ... ... ... | Gentleman .. .. | Country ... | 264 | 41 | 67 | 71·2 | 35·9 | 68·9 | 142·5 |
| 24 | Married | Dark grey ... | Colchester, Essex ... ... | Jeweller... .. .. | Town ... | 242 | 69 | 67 | 70·8 | 36·5 | 68·3 | 137·25 |
| 24 | Married | Grey brown | Northfleet, Kent ... ... | Dairyman . .. | Country ... | 200 | 61 | 66 | 70·2 | 35·1 | 68·1 | 142·0 |
| 24 | Married | Blue ... ... | Sunderland, Durham ... | Jeweller ... ... .. | Town ... | 164 | 71 | 64 | 67·0 | 33·8 | 63·9 | 122·25 |
| 24 | Married | Blue ... ... | Deptford, Kent ... ... | Policeman .. ... | Suburb .. | 196 | 81 | 66 | 74·0 | 36·0 | 71·8 | 155·5 |
| 24 | Married | Hazel ... | Chelsea, Middlesex ... ... | Messenger .. ... | Town ... | 240 | 88 | 77 | 68·2 | 36·4 | 69·1 | 154·75 |
| 24 | Married | Grey ... | Chelsea, Middlesex ... ... | Fishmonger ... .. | Town ... | 188 | 79 | 70 | 66·5 | 35·4 | 65·5 | 137·5 |
| 24 | Married | Hazel ... | Devon ... ... ... ... | Mariner ... ... ... | ? ... ... | 208 | 93 | 90 | 69·0 | 35·0 | 68·2 | 161·5 |
| 24 | Married | Grey ... | Exning, Suffolk ... ... | Oilman ... ... ... | Town ... | 220 | 100 | 87 | 67·0 | 34·7 | 64·6 | 155·75 |
| 24 | Married | Hazel ... | London... ... ... ... | Engraver on wood ... | Suburb ... | 184 | 78 | 78 | 70·5 | 36·8 | 68·6 | 166·0 |
| 24 | Married | Blue grey ... | Denham, Bucks ... ... | Hay salesman ... ... | Town ... | 208 | 80 | 77 | 67·0 | 35·5 | 65·75 | 141·0 |
| 24 | Married | Hazel brown | Market Rasen, Lincolnshire | Fish merchant ... .. | Town ... | 208 | 92 | 92 | 69·5 | 36·2 | 68·0 | 142·5 |
| 24 | Married | Blue ... ... | Walworth, Surrey ... ... | Sup. Refresh. Depart. ... | Town ... | 266 | 92 | 80 | 75·4 | 36·8 | 73·2 | 147·25 |
| 24 | Married | Blue grey ... | Farnham, Surrey ... ... | Stableman ... ... | Town ... | 234 | 76 | 68 | 69·5 | 35·4 | 66·6 | 146·5 |
| 24 | Married | Blue grey ... | London... ... ... ... | Clerk ... ... ... | Suburb ... | 266 | 98 | 93 | 73·75 | 36·6 | 69·2 | 144·5 |
| 24 | Married | Blue ... ... | Walworth, Surrey ... ... | Sup. Refresh. Depart. .. | Town ... | 246 | 96 | 90 | 75·5 | 36·9 | 73·0 | 147·75 |
| 24 | Married | — | Bristol, Gloucestershire ... | Traveller ... ... ... | Town ... | 174 | 81 | 86 | 72·5 | 36·7 | 69·6 | 146·0 |

| Age last birth-day. | Married or un-married. | Eye Colour. | Birthplace. | Occupation. | Residence. | Breathg. Capacity. cubic inches. | Squeeze in lbs. | | Span. | Height from Seat. | Height without shoes. | Weight. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rt. hand. | Left hand. | inches. | inches. | inches. | lbs. |
| 24 | Married | Dark brown | London ... ... ... ... | Clerk ... .. ... | Suburb... | 185 | 88 | 90 | 67·0 | 34·9 | 63·2 | 132·5 |
| 24 | Married | Blue grey ... | London ... ... ... ... | Tradesman ... ... ... | Town ... | 260 | 93 | 92 | 72·8 | 38·0 | 72·2 | 161·0 |
| 24 | Married | Brown ... | South Shields, Durham ... | Magistrate's clerk ... | Town ... | 240 | 83 | 79 | 68·0 | 37·1 | 67·6 | 139·0 |
| 24 | Married | Brown ... | Sudbury, Suffolk ... ... | Miller ... ... ... | Town ... | 158 | 73 | 71 | 67·8 | 35·5 | 67·1 | 144·75 |
| 25 | Unmarr. | Brown .. | Lambeth, Surrey ... ... | Compositor ... ... ... | Town ... | 206 | 88 | 85 | 75·5 | 38·5 | 73·5 | 177·5 |
| 25 | Unmarr. | Hazel ... | Swansea, Glamorganshire ... | Mariner ... ... ... | ? ... | 328 | 85 | 80 | 75·75 | 38·6 | 74·2 | 169·25 |
| 25 | Unmarr. | Brown ... | Plymouth, Devonshire... ... | Printer and stationer ... | Town ... | 244 | 89 | 88 | 69·8 | 37·7 | 68·7 | 158·0 |
| 25 | Unmarr. | Blue grey ... | London ... ... ... ... | Barrister ... ... ... | Town ... | 304 | 78 | 83 | 75·0 | 36·5 | 71·5 | 203·5 |
| 25 | Unmarr. | Grey ... ... | London ... ... ... ... | Surgeon ... .. ... | Suburb... | 305 | 99 | 98 | 71·5 | 37·0 | 69·1 | 157·0 |
| 25 | Unmarr. | Grey ... ... | Bucks ... ... ... ... | Policeman ... ... ... | Town .. | 290 | 93 | 89 | 76·0 | 38·6 | 73·1 | 196·5 |
| 25 | Unmarr. | Brown ... | East Peckham, Kent ... ... | Book keeper ... ... | Suburb... | — | 83 | 66 | 67·5 | 34·6 | 66·3 | 117·75 |
| 25 | Unmarr. | Hazel ... | Aberdeenshire ... ... .. | Clerk ... ... ... | Suburb | 222 | 72 | 77 | 70·1 | 36·1 | 69·6 | 141·0 |
| 25 | Unmarr. | Brown grey... | Stanmore, Middlesex ... ... | Gentleman ... ... ... | Country | 300 | 65 | 67 | 77·2 | 39·5 | 75·8 | 186·75 |
| 25 | Unmarr. | Brown grey.. | Arbroath, Scotland ... .. | Wood turner ... ... | Town ... | 178 | 78 | 75 | 69·25 | 35·8 | 65·8 | 127·5 |
| 25 | Unmarr. | Hazel ... | Bedford ... ... ... ... | Lithographer ... ... | Town ... | 236 | 83 | 77 | 64·6 | 35·3 | 64·7 | 135·5 |
| 25 | Unmarr. | Hazel ... | Manchester, Lancashire ... | Schoolmaster ... ... | Suburb... | 192 | 70 | 56 | 67·75 | 36·2 | 68·1 | 141·75 |
| 25 | Unmarr. | Grey ... | Barnstaple, Devonshire ... | Grate manufacturer ... | Cy. town | 198 | 93 | 110 | 71·0 | 35·9 | 69·3 | 153·75 |
| 25 | Unmarr. | Brown ... | Chelsea, Middlesex ... ... | Art master ... ... ... | Town ... | 160 | 58 | 60 | 65·6 | 35·6 | 63·7 | 136·5 |
| 25 | Unmarr. | Grey brown... | Winchester, Hants ... ... | Gentleman ... ... ... | Country | 230 | 85 | 83 | 74·0 | 36·1 | 68·1 | 151·0 |
| 25 | Unmarr. | Blue ... ... | Yorkshire... ... ... ... | Soap maker... ... ... | Town ... | 170 | 70 | 72 | 70·0 | 35·4 | 65·5 | 141·75 |
| 25 | Unmarr. | Blue ... ... | Bourne End, Buckinghamshire | Clerk... ... ... ... | Town ... | 310 | 87 | 86 | 73·8 | 37·3 | 72·0 | 167·0 |
| 25 | Unmarr. | Blue ... ... | Ockbrook, Derby ... ... | Tutor ... ... ... | Town ... | 204 | 61 | 70 | 66·5 | 34·0 | 63·8 | 131·0 |
| 25 | Unmarr. | Hazel ... | Wellingbro., Northamptonshire | Baker ... ... ... | Town ... | 210 | 58 | 62 | 69·5 | 34·6 | 65·5 | 134·0 |
| 25 | Unmarr. | Blue grey ... | Norfolk ... ... ... .. | Schoolmaster ... ... | Country | 204 | 72 | 70 | 66·5 | 35·9 | 66·4 | 129·0 |
| 25 | Unmarr. | Brown ... | Great Yarmouth, Norfolk ... | Solicitor ... ... ... | Town ... | 192 | 84 | 83 | 70·3 | 35·3 | 66·5 | 155·0 |
| 25 | Unmarr. | Light hazel... | Maidstone, Kent ... ... | Solicitor ... ... ... | Town ... | 296 | 81 | 83 | 71·3 | 35·5 | 69·4 | 160·25 |
| 25 | Unmarr. | Grey ... .. | Perth ... ... ... ... | Joiner .. ... ... | Country | 234 | 89 | 88 | 67·2 | 35·4 | 65·6 | 142·5 |
| 25 | Unmarr. | Hazel ... | London ... ... ... ... | Schoolmaster ... ... | Suburb... | 120 | 76 | 64 | 69·0 | 35·5 | 66·8 | 123·5 |
| 25 | Unmarr. | Blue grey ... | Charlton, Kent ... ... ... | Engineer ... ... ... | Country | 188 | 80 | 77 | 74·75 | 36·4 | 67·5 | 170·0 |
| 25 | Unmarr. | Brown ... | London ... ... ... ... | Shop assistant ... ... | Suburb... | 170 | 71 | 65 | 65·2 | 34·1 | 63·3 | 131·75 |
| 25 | Unmarr. | Brown ... | Upton ... ... ... ... | Architect ... ... ... | Town ... | 244 | 81 | 72 | 67·6 | 34·0 | 65·8 | 126·0 |
| 25 | Unmarr. | Blue grey .. | London ... ... ... ... | Accountant... ... ... | Suburb... | 204 | 79 | 71 | 66·25 | 35·9 | 66·4 | 128·5 |
| 25 | Unmarr. | Grey blue ... | Dundee, Scotland ... ... | Art teacher... ... ... | Town ... | 254 | 80 | 67 | 69·0 | 36·5 | 67·6 | 140·25 |
| 25 | Unmarr. | Dark grey ... | Kirky Overblow, Yorkshire ... | Tutor ... ... ... | Country | 268 | 97 | 96 | 70·6 | 35·3 | 69·6 | 158·0 |
| 25 | Unmarr. | Blue grey ... | Tichmarsh, Northamptonshire | Schoolmaster ... ... | Suburb... | 218 | 78 | 84 | 67·25 | 35·3 | 66·0 | 130·0 |
| 25 | Unmarr. | Blue grey ... | Battle, Sussex ... ... ... | Stationer ... ... ... | Country | 200 | 82 | 73 | 72·4 | 36·9 | 71·3 | 171·25 |
| 25 | Unmarr. | Hazel brown | Brighton, Sussex ... ... | Stationer ... ... ... | Suburb... | 302 | 82 | 89 | 71·1 | 38·1 | 71·0 | 164·25 |
| 25 | Unmarr. | Grey ... ... | Harrow, Middlesex ... ... | Tutor ... ... ... | Suburb .. | 272 | 94 | 74 | 70·5 | 34·2 | 66·8 | 139·0 |
| 25 | Unmarr. | Grey ... ... | Edinburgh ... ... ... | Butcher ... ... ... | Town .. | 260 | 88 | 79 | 72·2 | 35·7 | 67·8 | 143·0 |
| 25 | Unmarr. | Blue ... ... | London ... ... ... ... | Engineer ... ... .. | Suburb... | 240 | 98 | 95 | 70·25 | 37·0 | 67·9 | 141·75 |

| Age last birthday. | Married or unmarried. | Eye Colour. | Birthplace. | Occupation. | Residence. | Breathg. Capacity. cubic inches. | Squeeze in lbs. | | Span. | Height from Seat. | Height without shoes. | Weight. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rt. hand. | Left hand. | inches. | inches. | inches. | lbs. |
| 25 | Unmarr. | Grey ... ... | London ... ... ... ... | Commercial... ... ... | Town ... | 260 | 97 | 95 | 71·1 | 36·0 | 70·2 | 147·25 |
| 25 | Unmarr. | Grey blue ... | Paddington, Middlesex ... | Medical student ... ... | Town ... | 218 | 95 | 95 | 72·6 | 34·9 | 68·0 | 170·0 |
| 25 | Unmarr. | Brown ... | Plymouth, Devonshire... ... | Mariner ... ... ... | ? | 210 | 93 | 90 | 69·2 | 35·1 | 66·3 | 159·5 |
| 25 | Unmarr. | Hazel ... | Dublin ... ... ... ... | Surgeon ... ... ... | Town ... | 248 | 91 | 70 | 71·0 | 37·0 | 69·3 | 199·0 |
| 25 | Unmarr. | Dark grey ... | London ... ... ... ... | Insurance collector ... | Town ... | 260 | 82 | 90 | 66·8 | 34·9 | 64·9 | 149·0 |
| 25 | Unmarr. | Blue ... ... | Weymouth, Dorset ... ... | Tutor ... ... ... | Country | 208 | 83 | 84 | 67·3 | 34·5 | 65·2 | 138·0 |
| 25 | Unmarr. | Grey brown... | Kenilworth, Warwickshire ... | Manufacturer ... ... | Town ... | 188 | 72 | 78 | 66·0 | 34·1 | 64·5 | 115·0 |
| 25 | Unmarr. | Hazel brown | Edinburgh ... ... ... | Cotton broker ... ... | Suburb ... | 258 | 85 | 79 | 72·0 | 36·6 | 71·2 | 150·25 |
| 25 | Unmarr. | Brown ... | London ... ... ... ... | Mercantile ... ... ... | Town ... | 290 | 98 | 95 | 73·5 | 37·4 | 69·7 | 157·75 |
| 25 | Unmarr. | Grey brown... | Bilston, Staffordshire ... ... | Analyst ... ... ... | Town ... | 218 | 68 | 69 | 66·5 | 34·1 | 65·8 | 129·5 |
| 25 | Unmarr. | Blue ... ... | Sutton Bridge, Lincolnshire ... | Accountant... ... ... | Country | 196 | 74 | 77 | 72·4 | 35·0 | 68·9 | 138·5 |
| 25 | Unmarr. | Grey blue ... | Uttoxeter, Staffordshire ... | Bank clerk ... ... ... | Town ... | 206 | 66 | 74 | 65·8 | 35·3 | 65·8 | 129·25 |
| 25 | Unmarr. | Brown ... | Coleraine, Ireland ... ... | Clerk... ... ... ... | Country | 164 | 67 | 47 | 68·2 | 35·2 | 66·7 | 136·75 |
| 25 | Unmarr. | Grey... ... | Sevenoaks, Kent ... ... | Accountant... ... ... | Tn. & cy. | 160 | 77 | 71 | 71·75 | 35·8 | 69·1 | 138·0 |
| 25 | Unmarr. | Brown .. | London ... ... ... ... | Tea dealer ... .. .. | Town ... | 190 | 95 | 87 | 70·5 | 38·0 | 69·5 | 160·0 |
| 25 | Unmarr. | Brown grey... | Harborne, Warwickshire ... | Artist ... ... ... | Town ... | 239 | 99 | 86 | 70·5 | 36·8 | 70·7 | 166·25 |
| 25 | Unmarr. | Brown .. | Denbighshire ... ... ... | None... ... ... ... | Suburb ... | 226 | 84 | 86 | 67·0 | 36·5 | 66·7 | 130·0 |
| 25 | Unmarr. | Blue ... .. | Burton on Trent, Staffordshire | — — | Town ... | 180 | 73 | 72 | 66·5 | 34·7 | 64·2 | 119·75 |
| 25 | Unmarr. | Grey blue .. | Primrose Hill, Middlesex ... | Engineer ... ... ... | Town ... | 78 | — | — | 67·0 | 35·7 | 65·8 | 123·0 |
| 25 | Unmarr. | Blue ... ... | Aberystwith, Cardiganshire ... | Chemist ,... ... ... | Town ... | 184 | 80 | 65 | 66·0 | 35·8 | 66·3 | 120·75 |
| 25 | Unmarr. | Grey ... ... | London ... ... ... ... | Teacher ... ... ... | Suburb ... | 200 | 91 | 85 | 69·5 | 35·5 | 66·7 | 137·25 |
| 25 | Unmarr. | Blue ... ... | Bermondsey, Surrey ... ... | Salesman ... ... ... | Town ... | 240 | 92 | 101 | 70·25 | 36·4 | 69·4 | 166·0 |
| 25 | Unmarr. | Blue ... ... | Manchester, Lancashire ... | Clerk... ... ... ... | Suburb ... | 184 | 60 | 60 | 64·7 | 34·8 | 64·5 | 107·25 |
| 25 | Unmarr. | Brown ... | Newton Longville, Bucks ... | Clergyman... ... ... | Country | 218 | 90 | 92 | 71·0 | 36·5 | 68·7 | 160·75 |
| 25 | Unmarr. | Grey blue ... | Oxford ... ... ... ... | Clergyman ... ... ... | Town ... | 288 | 101 | 109 | 71·25 | 37·7 | 71·2 | 168·5 |
| 25 | Unmarr. | Hazel ... | Aberdeenshire ... ... ... | Lecturer ... ... ... | Town ... | 220 | 67 | 59 | 68·6 | 36·0 | 68·3 | 137·5 |
| 25 | Unmarr. | Brown grey... | Hoddesdon, Hertfordshire ... | Clerk ... ... ... | Town ... | 178 | 68 | 75 | 63·5 | 34·2 | 62·2 | 133·75 |
| 25 | Unmarr. | Brown ... | Ruthin, Denbighshire ... ... | None... ... ... ... | Suburb .. | 260 | 75 | 76 | 66·5 | 36·0 | 67·0 | 130·0 |
| 25 | Unmarr. | Grey blue ... | London ... ... ... ... | Tailor ... ... ... | Country | 244 | 98 | 95 | 67·0 | 35·3 | 65·8 | 141·0 |
| 25 | Unmarr. | Grey blue .. | London ... ... ... ... | Engineer ... ... ... | Town ... | 240 | 96 | 103 | 72·0 | 35·0 | 68·0 | 166·0 |
| 25 | Unmarr. | Blue grey ... | Derby ... ... ... ... | Lecturer on chemistry ... | Town ... | 198 | 87 | 76 | 68·5 | 36·0 | 68·0 | 147·5 |
| 25 | Unmarr. | Brown grey... | London ... ... ... ... | Surgeon ... ... ... | Suburb ... | 240 | 109 | 103 | 73·0 | 36·5 | 71·5 | 152·0 |
| 25 | Unmarr. | Blue ... ... | E. Preston, Sussex ... ... | Estate agent ... ... | Country | 260 | 73 | 74 | 72·2 | 36·5 | 69·0 | 140·0 |
| 25 | Unmarr. | Grey ... ... | Camberwell, Surrey ... ... | Accountant .. ... ... | Town ... | 170 | 90 | 89 | 72·25 | 35·4 | 69·1 | 149·5 |
| 25 | Unmarr. | Brown grey... | London ... ... ... ... | Engineer's draughtsman... | Suburb ... | 244 | 76 | 73 | 70·5 | 35·0 | 68·0 | 132·25 |
| 25 | Unmarr. | Grey ... ... | Bath, Somerset ... ... ... | Solicitor ... ... ... | Suburb ... | 220 | 87 | 88 | 67·75 | 36·7 | 67·1 | 149·0 |
| 25 | Unmarr. | Grey ... ... | Bridgewater, Somerset ... | Servant ... ... ... | Town ... | 170 | 67 | 81 | 68·75 | 34·7 | 66·1 | 141·5 |
| 25 | Unmarr. | Hazel ... | Llandovery, Caermarthenshire | Schoolmaster ... ... | Country | 200 | 90 | 88 | 72·0 | 37·3 | 69·2 | 162·0 |
| 25 | Unmarr. | Brown grey... | Oxfordshire ... ... ... | Solicitor ... ... ... | Suburb ... | 250 | 106 | 98 | 75·4 | 34·6 | 71·4 | 151·0 |
| 25 | Unmarr. | Grey blue ... | Jersey ... ... ... ... | Clerk... ... ... ... | Town ... | 180 | 73 | 66 | 68·3 | 33·7 | 66·7 | 123·5 |

| Age last birthday. | Married or unmarried. | Eye Colour. | Birthplace. | Occupation. | Residence. | Breathg. Capacity. cubic inches. | Squeeze in lbs. | | Span. inches. | Height from Seat. inches. | Height without shoes. inches. | Weight. lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rt. hand. | Left hand. | | | | |
| 25 | Unmarr. | — | London ... ... ... .. | Clerk.. ... ... ... | Town ... | 192 | 59 | 54 | 64·6 | 34·9 | 64·1 | 123·5 |
| 25 | Unmarr. | Grey ... ... | High Wycombe, Bucks .. | Ironmonger... ... ... | Town ... | 212 | 71 | 71 | 71·3 | 37·0 | 68·7 | 141·5 |
| 25 | Unmarr. | Blue ... ... | Dover, Kent ... ... ... | Officer R.H.A. ... ... | Country | 337 | 109 | 93 | 78·3 | 39·0 | 75·6 | 186·25 |
| 25 | Unmarr. | Blue grey ... | Dover, Kent ... ... ... | Draper ... ... ... | Town ... | 224 | 89 | 80 | 70·25 | 35·8 | 68·8 | 129·0 |
| 25 | Unmarr. | Blue ... ... | Swansea, Glamorganshire ... | Timber importer ... ... | Town ... | 222 | 73 | 70 | 68·6 | 33·9 | 63·6 | 140·0 |
| 25 | Unmarr. | Light blue ... | Sunderland, Durham ... ... | Parson ... ... ... | Town ... | 284 | 95 | 95 | 75·1 | 38·8 | 72·9 | 168·5 |
| 25 | Unmarr. | Brown grey.. | Colchester, Essex ... ... | Clerk... ... ... ... | Town ... | 300 | 84 | 91 | 74·3 | 38·4 | 73·0 | 162·5 |
| 25 | Unmarr. | Grey ... ... | London ... ... ... ... | Clerk ... ... ... | Town ... | 284 | 84 | 80 | 72·7 | 36·7 | 69·8 | 143·5 |
| 25 | Unmarr. | Grey ... ... | Northampton ... ... .. | Student ... ... ... | Country | 220 | 78 | 84 | 65·8 | 35·1 | 66·3 | 137·0 |
| 25 | Unmarr. | Brown ... | Lambeth, Surrey ... ... | Government clerk... ... | Suburb ... | 224 | 99 | 81 | 71·5 | 36·1 | 68·8 | 167·0 |
| 25 | Unmarr. | Light grey ... | Marylebone, Middlesex ... | Printer ... ... ... | Town ... | 152 | 71 | 72 | 69·25 | 36·0 | 67·9 | 134·0 |
| 25 | Unmarr | Blue ... ... | Norton Bavant, Wiltshire ... | Schoolmaster ... ... | Town ... | 194 | 83 | 96 | 66·6 | 36·1 | 66·8 | 140·75 |
| 25 | Unmarr. | Blue ... ... | Croydon, Surrey ... ... | Mercantile clerk ... ... | Town ... | 264 | 85 | 75 | 72·6 | 37·3 | 69·6 | 149·0 |
| 25 | Unmarr. | Brown ... | Seacroft, Yorkshire ... ... | Clergyman ... ... ... | Suburb ... | 240 | 89 | 87 | 69·5 | 35·2 | 66·5 | 148·5 |
| 25 | Unmarr. | Grey blue ... | Reading, Berkshire ... ... | Surveyor ... ... .. | Suburb ... | 248 | 89 | 85 | 74·0 | 36·4 | 70·0 | 153·75 |
| 25 | Unmarr. | Brown ... | Wrexham, Denbighshire ... | Analyst ... ... ... | Suburb ... | 224 | 65 | 62 | 67·5 | 34·2 | 65·3 | 123·0 |
| 25 | Unmarr. | Grey brown... | London ... ... ... ... | Clerk ... ... ... | Suburb ... | 204 | 79 | 94 | 69·7 | 35·0 | 66·5 | 138·0 |
| 25 | Unmarr. | Blue ... ... | Lanarkshire ... ... ... | Teacher ... ... ... | Town ... | 290 | 92 | 82 | 71·5 | 38·1 | 70·9 | 177·0 |
| 25 | Unmarr. | Blue ... ... | London ... ... ... ... | Merchant clerk ... ... | Town ... | 272 | 87 | 98 | 72·1 | 39·1 | 72·1 | 149·25 |
| 25 | Unmarr | Brown ... | Tunbridge, Kent ... ... | Solicitor ... ... ... | Country | 248 | 77 | 75 | 73·2 | 36·8 | 70·3 | 141 0 |
| 25 | Married | Light blue .. | Totnes, Devonshire ... ... | Schoolmaster ... ... | Suburb ... | 276 | 88 | 75 | 73·75 | 37·1 | 71·0 | 138·5 |
| 25 | Married | Brown ... | Shaftesbury, Dorsetshire ... | Furniture warehouseman | Suburb ... | 244 | 97 | 84 | 68·5 | 36·6 | 68·5 | 145·5 |
| 25 | Married | Grey ... ... | Teddington, Middlesex ... | Grocer ... ... ... | Suburb ... | 180 | 86 | 82 | 70·0 | 35·5 | 65·7 | 138·0 |
| 25 | Married | Brown ... | London ... ... ... ... | Manufacturer ... ... | Suburb ... | 264 | 100 | 89 | 70·3 | 35·3 | 68·1 | 110·25 |
| 25 | Married | Grey ... ... | Middlesex ... ... . | Clerk ... ... ... | Town ... | 240 | 89 | 83 | 73·8 | 37·4 | 71·5 | 135·25 |
| 25 | Married | Brown ... | Essex ... ... ... ... | Cheesemonger ... ... | Town ... | 192 | 74 | 84 | 70·5 | 34·6 | 67·8 | 127·5 |
| 25 | Married | Grey ... ... | London ... ... ... ... | Carpenter ... ... ... | Country | — | 76 | 83 | 65·8 | 33·0 | 62·2 | 118·25 |
| 25 | Married | Blue ... ... | Lambeth, Surrey ... ... | Policeman ... ... ... | Town ... | 220 | 78 | 77 | 68·5 | 37·4 | 69·5 | 155·25 |
| 25 | Married | Blue ... ... | London ... .. ... ... | Electrical engineer ... | Town ... | 302 | 88 | 93 | 73·2 | 38·4 | 72·9 | 158·0 |
| 25 | Married | Blue grey ... | Ironbridge, Salop ... ... | Ironmonger ... ... | Suburb ... | 320 | 100 | 100 | 74·0 | 37·8 | 71·2 | 188·5 |
| 25 | Married | Brown grey... | Harwich, Essex ... ... ... | Printer ... ... ... | Town ... | 180 | 73 | 71 | 69·0 | 35·5 | 68·4 | 135·5 |
| 25 | Married | Grey blue ... | Cambridge ... ... .. | Pastry cook... ... ... | Town ... | 260 | 70 | 77 | 70·3 | 36·1 | 66·8 | 134·25 |
| 25 | Married | Blue grey ... | Richmond, Surrey ... ... | Electrician ... ... ... | Tn. & cy. | 286 | 93 | 87 | 71·2 | 36·0 | 69·2 | 133·0 |
| 25 | Married | Grey ... .. | Dundee ... ... ... ... | Telegraphist ... ... .. | Town ... | 238 | 80 | 80 | 70·0 | 36·6 | 68·1 | 145·5 |
| 25 | Married | Dark grey ... | Wallingford, Surrey ... ... | Chemist ... ... ... | Town ... | 226 | 73 | 84 | 71·5 | 36·8 | 69·6 | 164·0 |
| 25 | Married | Grey blue ... | Hampstead, Middlesex... ... | Student ... ... ... | Suburb ... | 234 | 96 | 95 | 76·0 | 38·5 | 72·3 | 166·5 |
| 25 | Married | Brown ... | Rochester, Kent ... ... | Architect ... ... ... | Town ... | 210 | 80 | 85 | 70·5 | 35·4 | 66·7 | 135·75 |
| 25 | Married | Blue ... ... | Wigan, Lancashire ... ... | Civil engineer ... ... | Town ... | 186 | 62 | 79 | 70·0 | 35·5 | 67·1 | 124·25 |
| 25 | Married | Dark blue .. | London ... ... ... ... | Barrister ... ... ... | Town ... | 298 | 102 | 96 | 77·9 | 36·6 | 71·3 | 152·75 |
| 25 | Married | Grey brown | Clerkenwell, Middlesex ... | Warehouseman ... ... | Town ... | 228 | 90 | 97 | 70·6 | 36·6 | 69·6 | 136·0 |

## Questions *on the* Manners, Customs, Religion, Superstitions, &c. *of* Uncivilized *or* Semi-Civilized Peoples.

Drawn up by J. G. Frazer, M.A., F.R.G.S., Trinity College, Cambridge.[1]

*Tribes.*—Are the natives divided into tribes, clans, or castes? Are these tribes, clans, or castes subdivided? Enumerate the tribes, &c. 2. Are the tribes, &c., distinguished by differences in dress, in the mode of wearing the hair, &c.? 3. What kind of names are borne by the tribes, clans, &c.? Are the names ever the names of animals, plants, or other natural objects? 4. Do the members of the tribe, clan, or caste regard as sacred the animal, plant, &c., from which they take their names? Do they refuse to kill and eat the animal or plant from which they take their name? (*N.B.*—The animal, plant, &c., which gives its name to a tribe, clan, or caste, and which is held sacred by the members of that tribe, clan, or caste, is called a *Totem*). 5. What do they think would happen to them if they were to kill or eat such animals or plants? Have they any stories as to the origin of the tribes, clans, or castes? and as to the connection of the tribes, &c., with their totems?

*Birth, Descent, Adoption.*—7. What ceremonies are observed at birth? 8. Is the mother secluded? Has she to observe any rules as to diet, &c., during pregnancy or after the birth? Is she regarded as unclean? and has she to perform any ceremonies before being readmitted to society? 9. Has her husband to observe any rules as to diet, &c., before or after the birth? Does he behave in any special way, or is subjected to any special treatment at such times? 10. How is the child named? Is there any ceremony like baptism? Any god-father or god-mother? 11. Are there any special observances in regard to infants whose elder brothers or sisters have died previously? 12. Are children ever killed at birth? Is there a regular custom of killing the first born or last born children? Are female infants killed rather than male infants, or *vice versâ*? 13. When the father and mother belong to different tribes, clans, or castes, do the children take the name of the father's tribe, &c., or of the mother's? Are they reckoned to the tribe, &c., of the father, or to that of the mother? 14. Is adoption practised? With what ceremonies is it accompanied?

[1] These questions are being circulated among missionaries, travellers, and others who have a first-hand knowledge of savage tribes. A Spanish translation of them is being prepared for circulation in the Philippines and the Spanish-speaking republics of South America. Copies of the questions may be had on application to Mr. Frazer, Trinity College, Cambridge.

Mr. Frazer proposes to publish the results of his inquiries. Full acknowledgment will be made of those who may favour him with answers, and printed copies will be forwarded to them. It is probable that the answers will in most cases be published in this Journal. The first set of answers is expected to appear in the next number.

*Puberty.*—15. Are any ceremonies performed on lads at puberty? Describe such ceremonies fully. 16. Is there any pretence at such rites of killing the lad and then restoring him to life? 17. After these initiatory rites, are the lads forbidden to see women for a certain time? If so, why? 18. Do they at these or other times circumcise, knock out, chip, or file the teeth, bore the nose, distend the ears, insert rings in the lips, &c.? What reasons do they give for such practices? 19. Do they tattoo or raise cicatrices on their bodies at puberty or on other occasions? What patterns are tattooed or incised? On what parts of the body are they made? Drawings of the tattoo marks would be useful. 20. What ceremonies accompany the tattooing? 21 Are both men and women tattooed, or only men, or only women? 22. Do the tattoo marks serve as badges to distinguish tribes, clans, or castes? 23. Are any ceremonies performed on girls at puberty? 24. Is a girl secluded at her first menstruation? What rules has she to observe at such times? Is she allowed to see the sun or fire? 25. Are women generally secluded at menstruation? What rules have they to observe at these times? 26. What do they suppose is the cause of menstruation? What do they think would be the effect if a man were to see or touch a menstruous woman?

*Marriage.*—27. Is a man compelled, or is he forbidden to marry a woman of the same tribe, clan, or caste as himself? 28. In the case where persons of the same tribe, clan, or caste are not allowed to marry, are they allowed to have sexual intercourse without marriage, or would this be equally wrong? 29. Are any natural ill effects supposed to follow a breach of these sexual rules? Is any punishment inflicted on the offender by the members of the tribe, clan, or caste? 30. What are the forbidden degrees of consanguinity in relation to marriage? 31. May a man have several wives? (polygamy). 32. May a woman have several husbands? (polyandry). 33. What reasons do they give for the practice of polygamy or polyandry? 34. How does a man obtain a wife? By purchase, capture, or how? 35. Does a man take his wife to his own home, or does he live with his wife's family? 36. Do bride and bridegroom prepare for marriage by fasting, bleeding, keeping awake the night before marriage, or in other ways? 37. Describe the marriage ceremonies fully, including the ceremonies observed at bringing the bride into the house or hut of the bridegroom. 38. Is the bride veiled? Are there any ceremonies at veiling or unveiling her? 39. Is the bride or bridegroom ever represented at the marriage ceremony by a proxy or dummy? 40. Is there anything corresponding to bridesmaids and best men? 41. Are any ceremonies observed by bride and bridegroom on the day after marriage? 42. Does a man cohabit with his wife immediately after marriage, or does he refrain for a certain time, say several days or months? 43. Does he visit his wife only by stealth for some time after marriage? If so, why? 44. Is it required or permitted that the wife should be deflowered by a person other than her husband? or that after the marriage cere-

mony she shall have connexion with other persons before she may cohabit with her husband? 45. Are there occasions on which men abstain from cohabiting with women, as during menstruation, pregnancy, after child-birth, till the child is weaned, previous to and during hunting, fishing, war, or other occasions? 46. Are there occasions when men exchange wives? 46A. What becomes of a widow? is she free to marry as she likes? have the relations of her late husband any rights over her? 47. May a man look at or speak to his mother-in-law? May a woman look at or speak to her father-in-law? 48. May brothers and sisters speak to each other?

*Disease and Death.*—49. What do they think are the causes of disease and death? 50. How do they try to cure disease? 51. If disease is thought to be caused by the presence of a demon or spirit in the sick person, how do they expel the demon or spirit? 52. What ceremonies take place at death? 53. How are the dead disposed of? 54. Is the ghost of the departed feared? Are any steps taken to propitiate the ghost or to prevent its return? 55. Are the persons who have handled the corpse regarded as unclean and obliged to purify themselves by means of fire, water, &c.? 56. Have the relations of the deceased (particularly the widow or widower) to observe any special rules for some time after the death? What is the mourning garb? 57. Are there any special customs or superstitions about the bones of the dead?

*Murder.*—58. Is a murder avenged by the relations of the murdered person? Are all members of the victim's tribe, clan, or caste bound to avenge his death? And are all members of the murderer's tribe, clan, or caste responsible? 59. Is compensation for homicide allowed? To whom is it paid, or how is it apportioned? 60. Is a murderer regarded as unclean, and has he to undergo purification before he is re-admitted to society? Are there any special rules as to his eating and drinking, his dress, the vessels he uses, &c.?

*Property and Inheritance.*—61. Is tribal or individual property in land recognised? 62. What are the rules of the descent of property? Does a man's property descend to his children, or to his brothers, or to the children of his sisters? 63. Do women inherit property? 64. Does the youngest child ever succeed in preference to the elder?

*Fire.*—65. How is fire obtained? Is it lighted when required or kept always burning? 66. Is it solemnly extinguished on certain occasions (as after a death, during a drought, at harvest, midsummer, &c.), and a new fire made? 67. Have they any superstitions regarding fire? Any story of its origin?

*Food.*—68. Do they eat everything? Or are certain foods forbidden? Are some foods forbidden (*a*) to every one without distinction; (*b*) to members of particular tribes, clans, or castes; (*c*) to women but not to men, or *vice versâ*; (*d*) on certain occasions, as after a death, during pregnancy, war-time, hunting, fishing, harvest, &c.; (*e*) at certain periods of life (childhood, puberty,

adult years, &c.)? What are the foods thus forbidden? What reasons do they give for the prohibitions? 69. Do men and women eat together? And if not, why not? 70. Do children eat with grown-up people? 71. Does each person eat apart? And if so, why? 72. Is cannibalism practised? Do they eat their enemies or their friends? 73. What reasons do they give for the practice? 74. Are there any special ceremonies at cannibal feasts? Are special vessels or implements used at such feasts? 75. Is the use of human flesh confined to any class or sex? 76. What is done with the bones of persons who have been eaten? 77. Do they ever drink the blood of men or animals? Or do they specially avoid the blood? 78. Are there occasions when they avoid even the sight of blood? (*e.g.*) Are men prohibited at times to see the blood of women, or women to see the blood of men? 79. Do they ever fast? On what occasions, and why? 80. Do they think that by eating the flesh of certain animals or persons they acquire the qualities of the animal or person eaten? (*e.g.*) That by eating the heart of a lion or of a brave man they become brave; by eating the heart of a hare or a deer they become timid, &c.?

*Hunting and Fishing.*—81. What customs and superstitions have they in connection with hunting and fishing? 82. Do the hunters and fishers prepare themselves for hunting and fishing by any observances or ceremonies? Do they observe any special rules as to eating, speaking, silence, &c., during hunting and fishing? Do they scarify themselves, and why? 83. Do the women and children left at home observe any special rules while the men are out hunting and fishing? 84. Do the hunters and fishers observe any special ceremonies on returning from the chase and from fishing? 85. Are any ceremonies observed for the purpose of appeasing the spirits of the animals and fish which have been killed? What do they do with the bones?

*Agriculture.*—86. Do they till the ground? What customs and superstitions have they in reference to agriculture? 87. Have they ceremonies at sowing, ploughing, and harvest? 88. Have they special rules as to eating the new corn and fruits, and as to the fire used to cook them? 89. Do they sacrifice to obtain good crops? Or to save the crops from blight, hail, &c.? 90. Have they ceremonies for keeping vermin (mice, catterpillars, birds, &c.) from the crops? 91. Have they any superstitions about the first corn cut or the last corn cut? 92. Is any portion of the crop preserved with special ceremonies till the next sowing or the next harvest? What reasons do they give for these customs? 93. Are there any ceremonies practised on the harvest field, such as wrapping up persons in the sheaves, rolling on the ground, &c.? 94. Are there any ceremonies or superstitions about threshing, winnowing, &c.? 95. Are persons engaged in agricultural operations (as sowing, reaping, threshing, gathering the fruits, making oil, &c.), regarded as sacred or tabooed in any way? Have they to observe any special rules during the operations? 96. Mention any superstitious uses of agricultural instruments, as the plough, winnowing basket, sieve, pestle for pounding corn or rice, &c.

*War.*—97. What ceremonies are observed before going to war? 98. Have the warriors on the war-path to observe any special rules as to diet, sleeping, scratching themselves, wetting their feet, touching their heads, &c.? 99. Are the persons left at home bound to observe any special rules as to diet, sleeping, &c., while the warriors are out on the war-path? 100. Do they mutilate their slain enemies? And how, and with what object? 101. What ceremonies are observed on the return of the war party? 102. Is a man who has slain an ememy obliged to perform certain ceremonies or to observe any special regimen before he may associate with his fellows? In particular, are there special rules affecting his eating, drinking, costume, and the vessels and implements which he uses?

*Government.*—103. Have they any form of Government? Are there chiefs? And what is their power? 104. Is the chieftainship elective or hereditary? If hereditary, does it descend to the chief's children, or to his brothers, or to his sister's children, or to whom?

*Oaths and Ordeals.* — 105. Have they any ceremonies at the making of friendships, covenants, peace, alliances, &c.? 106. Have they any special forms of oaths or judicial ordeals?

*Salutations.*—107. What are their forms of salutation?

*Arithmetic.*—108. Up to what number can they count? 109. Do they count on fingers and toes, and in a particular order, beginning with a particular finger? 110. Do they use pebbles, sticks, &c., in counting? 111. Do any of their numerals show that they are borrowed from the custom of counting on fingers and toes? (*e.g.*) Does 'hand' stand for five?; 'hands and feet' or 'man' for twenty? 112. Is any particular number used in the indefinite sense of 'many'?

*Writing.*—113. Do they send messages or make records by any methods like writing, as by notching sticks, carving or painting figures on wood or stone, tying knots in a string, &c.?

*Measurement of Time.*—114. How do they measure time? 115. How do they tell the time of day? 116. Do they reckon by days or by nights? 117. Do they reckon by phases of the moon? 118. How do they determine the year? By seasons? By the growth or ripening of certain plants or fruits? By the number of the moons? By the constellations which rise just before sunrise, or which set just after sunset? By the position of the sun's rising or setting at different times of the year, as indicated by natural landmarks? 119. Have they names for the months, and what do these names mean? 120. If they recognise both the lunar and solar year, how do they harmonize them? 121. Have they observed the solstices and equinoxes, and if so, how? 122. When does their year begin? Have they any ceremonies at the end of the old year and the beginning of the new one? 123. Have they any artificial time-keepers in the nature of sun-dials, water-clocks, pillars for determining the length of the sun's shadow at different times of the year, &c.?

*Games, Dances.*—124. What games and amusements have they?

125. Describe their dances. Are any of their dances imitations of animals? What is the object of such dances? Are their dances ever of the nature of a religious rite?

*Magic and Divination.*—126. Do they practice magic and witchcraft? Describe the methods employed. 127. Are there professional magicians, sorcerers, doctors, medicine-men, or witches among them? Do they inflict and cure disease, bewitch enemies, &c.? Describe their modes of operation. 128. How does a man become a sorcerer, doctor, or medicine-man? 129. Are there rain-makers? How do they procure or avert rain, hail, thunder, and lightning? 130. Do the sorcerers or medicine men ever dress as women? 131. Do the sorcerers or the people generally draw omens from living animals, birds, the entrails of animals, voices, &c.? 132. Have they any other modes of divination, as by the use of lots or dice?

*Religious and Political Associations.* — 133. Have they any associations for religious or political purposes? Describe the object of these associations, the mode of admission to them, the ceremonies performed by them, the privileges enjoyed by their members, the badges of membership, &c.

*Men as Women, Women as Men.*—134. Besides the case referred to above (No. 133), are there any other occasions on which men dress as women, and women as men, as at childbirth, marriage, and mourning? Are boys ever dressed as girls, and girls as boys? 134. What reasons do they give for such exchanges of dress?

*Sleep Forbidden.*—136. Are there any times when they are not allowed to sleep, *e.g.*, when sick or wounded, after circumcision, after child-bed, before marriage, &c.?

*Ceremonial Uncleanness.*—137. Besides the instances already referred to (see Nos. 8, 24, 25, 55, 60, 102), are there any other cases in which persons, things, or places are regarded as ceremonially unclean or impure? Describe the various modes of lustration or purification employed.

*Doctrine of Souls.* — 138. Do they think that human beings have souls? What is the nature of the soul? Does it resemble a shadow, a reflection, a breath, or what? 139. Is the soul supposed to depart from the body at death, in disease, sleep, dreams, trance, &c.? 140. Does the soul pass out of the body by the mouth, the nostrils, or how? 141. What is their theory of dreams? Do they believe in the reality and truth of what they see in dreams? 142. When a man is sick because his soul has departed from him, do his friends try to bring back his soul and restore it to his body? 143. Do his enemies try to catch and detain the wandering soul, in order that the man, deprived of his soul, may die? 144. Can a man's soul be extracted or stolen from his body? Can he lose it by accident? 145. Are souls driven away by noises, beating the air with sticks, &c.? Can they be bottled up, let out at holes, &c.? 146. Is the soul of a person who has just died recalled in the hope that it will return and reanimate the body? 147. What becomes of the

soul after death? Is there a spirit land where the souls of the dead gather? Where is this spirit land? How do the souls reach it? 148. Do souls transmigrate into animals, plants, &c.? When a tribe or clan is called after and reveres a certain species of animals or plants (which is the totem of the tribe or clan, see No. 4), are the souls of the members of the tribe or clan supposed at death to transmigrate into the totem animals or plants? 149. Are animals, trees, and plants supposed to have souls? Are they ever treated like human beings, spoken to as intelligent creatures, dressed in human dress, married to men and women, &c.? 150. Are animals and plants thought to possess language of their own? Are any persons supposed to understand the animal or plant language? How do they acquire such knowledge? 151. Are inanimate things, such as weapons, clothes, food, &c., supposed to have souls which are separable from the things, and which exist after the things are destroyed? 152. Are the souls of the dead worshipped with prayer, offerings, &c.?

*Demons and Spirits.*—153. Do they believe in demons and spirits, such as spirits of rivers, lakes, the sea, mountains, winds, clouds, trees, corn, rice, &c.? 154. Do they pray or sacrifice to these spirits? 155. Are the demons or spirits ever driven away from the house, camp, or village? Is there a periodical (*e.g.* annual) expulsion of demons or spirits?

*Scapegoats.*—156. Do they ever employ anything like a scapegoat?—*i.e.*, do they lade any person, animal, or thing with the disease, misfortunes, and sins of an individual, village, or tribe, and then kill, expel, throw away, or turn adrift the person, animal, or thing so laden, in the hope that the disease, misfortune, or sin will thus be carried away? 157. Do they on certain occasions solemnly kill animals which at other times are sacred and inviolate, *e.g.*, the totem animals? What are these occasions? What ceremonies are observed in killing them? What is done with the skin, flesh, blood, and bones of the animal thus killed? Is it, or any portion of it, eaten by the worshippers? What reasons do they give for these customs?

*Guardian Spirits.*—158. Does each man believe that he has a guardian spirit? 159. Do they think that their life or fortune is bound up with some special object (*e.g.* an animal, plant, tree, stone, &c.,) and that if this object is killed, lost, or destroyed they will die? 160. Are such patron objects acquired at birth, puberty, or when? What ceremonies are observed in choosing them? 161. How does the man treat his patron object in ordinary life and on special occasions, as in sickness, danger, at marriage, &c.? 162. When the patron object is an animal does the man ever dress in the skin, &c., of an animal of that species?

*Resurrection.*—163. Do they believe in any form of resurrection? Under what conditions is it supposed that a dead body may be resuscitated?

*The Heavenly Bodies, &c.*—164. Do they worship or show

respect to the sun, moon, and stars? Have they any ceremonies at the new moon, sunrise, sunset, the solstices, equinoxes, &c.? 165. Have they any myths about the sky, earth, sun, moon, and stars? 166. What do they think becomes of the sun at night? 167. How do they explain the phases of the moon? Also eclipses, thunder, lightning, rainbows, rain, wind, and earthquakes? 168. Have they any myths about animals, plants, the sea, rivers, mountains, clouds, origin of death, &c.? 169. Give as many of their fables, nursery tales, and traditions as you can.

*Sacrifice.*—170. Are sacrifices offered? Of what nature, and to what spirits or gods? 171. Are human beings sacrificed, and on what occasions? Are the victims captives or slaves, or the sacrificers' own children? 172. Are substitutes sometimes employed in sacrifice?—*e.g.*,will a common animal be sacrificed instead of one which is difficult to procure? a part of an animal instead of the whole? an effigy or imitation instead of the real animal or thing? 173. Do persons ever sacrifice parts of themselves, as hair, finger-joints, blood, &c.?

*Miscellaneous Superstitions.*—174. Have they any superstitions about shadows and reflections in the water? 175. About sneezing and yawning? 176. About stepping over persons or things? 177. About keeping silence at certain times? 178. About the use of the right or left hand or foot? 179. About footprints or the impress of their body in sand, on grass, &c.? 180. About numbers? 181. About animals and plants? 182. About cutting hair or nails? 183. About excrement? 184. About spittle? 185. About names? Do they object to tell their own names? or to mention the names of any of their relations, of chiefs, the dead, &c.? 186. Are the names of persons changed at different epochs of life, on various occasions, as during sickness or after a death? Are the names of common objects ever changed? What reasons do they give for these customs? 187. Describe any other curious customs or superstitions which you may have observed.

### *Supplementary Questions.*

*Pastoral Life.*—188. Do they keep cattle? and what kind of cattle? Does every one keep cattle, or only the chiefs? 189. Do they live on the flesh of their cattle or on the milk, or on both? Are cattle killed regularly for food, or only on special occasions? What are these special occasions? If they object to killing their cattle for food, have they any objection to killing and eating game? 190. How are the cattle killed? Is there one way of killing them when they are to be sacrificed, and another when they are to be eaten? 191. Is the killing of a head of cattle always or generally the occasion of a feast? Have other persons besides the owner of the cattle a right to share in such a feast? 192. Are the cattle regarded as sacred in any way? What marks of respect are paid to them? 193. Are the cattle milked and tended by men or by women? if by men, are the women rigorously forbidden to enter

the cattle-yards and to meddle with the cattle? 194. Is any special sanctity attached to the dairy, and to the dairyman or dairy-woman? Has he or she to undergo any special training for the office? or to perform any ceremonies before or after milking the cattle? 195. Are there any superstitious customs or beliefs about milk? Are any persons, in any circumstances (*e.g.* when wounded), forbidden to drink it? Is it forbidden to boil the milk? and why? 196. Is drinking milk together a bond of union between the persons drinking? Does it constitute a bar to marriage between a man and a woman? 197. Is any special use made of the dung and urine of the cattle in religious or other ceremonies? are they used as a means of purifying the person, house, utensils, &c.? 198. Is any sanctity ascribed to the grass, or in general to the fodder of the cattle? Is it used in ceremonial or religious rites? 199. Are the cattle ornamented in any way? are their horns twisted into special shapes?

*Agriculture.*—200. Are there any ceremonies or superstitions at clearing land for cultivation? at cutting down trees? 201. Any superstitious customs at digging wells or bringing water for irrigation? 202. How are the lands distributed for purpose of cultivation? has each man his own field, or are the fields owned and tilled by all the people in common? is there a periodical redistribution of land? 203. Are the same fields tilled year after year, or are they allowed to lie fallow for some years after cultivation? 204. If the cultivation shifts periodically from one district to another, is the site of the village shifted with it? or does the village remain permanent? 205. Does each man enjoy the produce of his field? or is the produce of all the fields thrown together, and then divided amongst all the people? 206. Is the beginning of the New Year determined by agricultural operations, as harvest or sowing? Is there a period of general license and lawlessness at the New Year or at any other time?

*Miscellaneous.*—207. Any superstitions about the birth of twins? 208. Any peculiar ceremonies at the reception of strangers, especially foreigners or people of a different tribe? 209. Any superstitious customs at building or occupying a new house? 210. Have the natives any kind of money, or anything that passes as money, such as cattle, cowries, salt, &c.? 211. How is the succession to the chieftainship or kingdom determined? What ceremonies are observed at the election or inauguration of chiefs and kings? 212. Is the daily life of the king or chief regulated by special rules? Has he to perform any sacred or priestly duties? Describe all such rules and duties. 213. How are priests elected? What rules of life have they to observe?

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### Race *and* Language.

In an article in the "Nineteenth Century," of January, 1889, by the Duke of Argyll, styled "Isolation, or the Survival of the Unfittest," the following remarks incidentally occur of great

interest to anthropologists as an illustration of the extremely varied nature of the connection between race and language in the British Isles. After stating that the long and wide prevalence of the old Celtic population, even in the east of Scotland, is shown by the equally broad distribution of Gaelic place-names, the Duke adds:—"It is, moreover, curiously illustrated by the circumstance mentioned in 'Burt's Letters,' that in Edinburgh, so late as about 1730–35, it was difficult to get domestic servants from Fifeshire, who could speak English."

This statement will seem the more remarkable to those who remember how very gradually the English language superseded the Celtic in south-western Britain. For, as Canon Isaac Taylor remarks ("Words and Places"), in the Will of King Alfred, Dorset, Somerset, Wilts, and Devon, are all enumerated as "Wealhcynne," or counties Celtic both in blood and language. In remote parts of Devon, Celtic was spoken here and there till the reign of Elizabeth. And in Cornwall, it has been absolutely extinct only about a century, "though in 1701," Mr. Tregellas remarks, "Llhuyd writes that every Cornish man could then speak English, and that Cornish was then spoken only in a few villages in the Land's End district." On turning to Canon Taylor's Map of the British Isles, illustrating the distribution of Celtic, Saxon, and Scandinavian place-names, we find that Cornwall, though it possessed fewer speakers of a Celtic tongue 150 years ago than Fifeshire, has very few Saxon place-names, while Fifeshire shows about as many as Devon and Somerset. But for the fact mentioned in "Burt's Letters," it would, naturally, have been supposed that Fifeshire must have been one of the earliest of the English-speaking counties of Scotland, being probably second in that respect only to Berwickshire and the Lothians. It seems difficult to account for the very great difference between the very slow and gradual diffusion of the English tongue westward in south-western Britain, and the retention of a Celtic language in Fifeshire a century and a half ago to a much greater degree than in Cornwall at the same date—the position of Fife, as regards the capital and the eastern coast, being analogous to that of Essex. Probably, in the time of George II, the trade of Fife with the counties south of the Firth was but small, and that with the Highlands to the westward much more considerable. While since that period the growth of commerce and wealth has made the Firth a channel of intercourse rather than a means of separation, and has thus caused a much more rapid diffusion of the language of the capital. For as regards race, an immigration of Highlanders into fertile Fife, is much more likely to have taken place since the the time of George II, than the emigration of the Celtic speakers of Fifeshire, to other districts.

T. V. Holmes.

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